

16530 U.S. PTO  
05/18/00

05-22-00

16539 U.S. PTO  
05/18/00

**CUSTOMER NO. 005179**



**005179**

PATENT TRADEMARK OFFICE

**PATENT**

Preliminary classification:

Proposed Class:  
Subclass:

*NOTE: All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferable class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example >Proposed Class 2, subclass 129, M.P.E.P. § 601, 7<sup>th</sup> ed.*

**Box: Patent Application  
Commissioner for Patents  
Washington, D.C. 20231**

**Practitioner Docket No.  
30603UT1002**

**NEW APPLICATION TRANSMITTAL**

Transmitted herewith for filing is the patent application of  
Inventor(s):

**John J. Johnson, IV**

**WARNING:**

*37 CFR 1.41(a) (1) points out:*

*"(a) A patent is applied for in the name or names of the actual inventor or inventors.*

*"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b) unless a petition under this paragraph accompanied by the fee set forth in § 1.17(l) is filed supplying or changing the name or names of the inventor or inventors."*

For (title):

**EMERGENCY RESPONSE VEHICLE**

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**CERTIFICATION UNDER 37 CFR 1.10\***

*(Express Mail label number is mandatory.)*

*(Express Mail certification is optional.)*

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date, **May 18, 2000**, in an envelope as "Express Mail Post Office to Addressee" Mailing Label No. **EL393280215US** addressed to the: **Box: PATENT APPLICATIONS, Commissioner for Patents, Washington, D.C. 20231**.

Diane S. Nelson, Paralegal

*Diane S. Nelson*  
(Signature of person mailing paper)

NOTE: Certificate of mailing (first class) or facsimile transmission procedures of 37 CFR 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

NOTE: Each paper or fee referred to as enclosed herein **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 CFR 1.10(b)  
"Since the filing of correspondence under § 1.10 without the Express Mail Mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition," Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439 at 56,442

## 1. Type of Application

This new application is for a(n) (check one applicable item below):

Original (Nonprovisional)  
 Design  
 Plant

**WARNING:** Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4) unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

**WARNING:** Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION IS CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION

Divisional  
 Continuation  
 Continuation-in-part (C-I-P)

## 2. Benefit of Prior U.S. Application(s) (35 USC 119(e), 120 or 121)

**Note:** A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. 112. Each prior application must also be:

- (i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or
- (ii) Complete as set forth in § 1.51(b); or
- (iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or
- (iv) entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(l) within the same period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

**WARNING:** If an application claims the benefit of the filing date of an earlier filed application under 35 USC 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 USC 120, 121 or 365(c), (35 USC 154(a)(2) does not take into account, for the determination of the patent term, any application to which priority is claimed under 35 USC 119, 365(a) or 365(b).) For a C-I-P application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20, 195, at 20,205

**WARNING:** When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application **must** be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3)

The new application being transmitted claims the benefit of prior U.S. application(s) and enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

**3. Papers Enclosed**

**A. Required For Filing Date Under 37 CFR 1.53(b) (Regular) or 37 CFR 1.153 (Design) Application**

28 Pages of specification

4 Pages of claims

21 Sheets of Drawing

**WARNING:** DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed new 37 CFR 1.84. Notice of March 9, 1988 (1990 O.G. 57-62).

**NOTE:** "Identifying indicia, if provided, should include the application number or title of the invention, inventor's name, docket number, and the name and phone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8") down from the top of the page." 37 CFR 1.84(c).

(complete the following, if applicable)

The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWINGS(S)". 37 CFR 1.84(b).

formal

informal

**B. Other Papers Enclosed**

Pages of declaration and power

1 Pages of Abstract

Other

**4. Additional papers enclosed**

Amendment to claims

Cancel in this application claims \_\_\_\_\_ before calculating the filing fee.  
(at least one original independent claim must be retained for filing purposes.)

Add the claims shown on the attached amendment. (claims added have been numbered consecutively following the highest numbered original claim.)

Preliminary Amendment

Information Disclosure Statement (37 CFR 1.98)

Form PTO-1449 (PTO/SB/08A and 08/B)

Citations

Declaration of Biological Deposit

Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.

Authorization of Attorney(s) to Accept and Follow Instructions from Representative

Special Comments

Other  Associate Power of Attorney

Petition to Make Special

## 5. Declaration or oath (including power of attorney)

**NOTE:** A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. § 163(d)(1)-(3).

**Note:** A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 163(a)(1)-(4).

**Note:** "The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.62, except as provided in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(l) is filed supplying or changing the name or names of the inventor or inventors." 37 C.F.R. § 1.41(a)(1).

Enclosed

executed by (check **all** applicable boxes)

inventor(s).

legal representative of inventor(s) 37 CFR 1.42 or 1.43

joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached

This is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. See item 13 below for fee.

Not enclosed

**WARNING:** Where the filing is a completion in the U.S. of an International Application but where a declaration is not available or where the completion of the U.S. application contains subject matter in addition to the International Application the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

Application is made by a person authorized under 37 CFR 1.41(c) on behalf of all the above named inventor(s).

*(The declaration or oath, along with the surcharge required by 37 CFR 1.16(e) can be filed subsequently.)*

Showing that the filing is authorized. (Not required unless called into question. 37 CFR 1.41(d).

## 6. Inventorship Statement

**NOTE:** If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

The same

or

Are not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

is submitted

will be submitted.

## 7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. A verified English translation of the non-English language application and the processing fee of \$130.00 required by 37 CFR 1.17(k) is required to be filed with the application or within such time as may be set by the Office 37 CFR 1.52(d).

NOTE: A non-English oath or declaration in the form provided or approved by the PTO need not be translated. 37 CFR 1.69(b).

English

non-English

— the attached translation includes a statement that the translation is accurate.  
37 CFR 1.52(d).

## 8. Assignment

— An assignment of the invention to \_\_\_\_\_.

— is attached. A separate \_\_\_\_\_ "COVER SHEET FOR ASSIGNMENT DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or \_\_\_\_\_ FORM PTO 1595 is also attached.

— will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters — one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 CFR 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

## 9. Certified Copy

Certified copy(ies) of application(s)

(country)	(appln.no.)	(filed)
(country)	(appln.no.)	(filed)
(country)	(appln.no.)	(filed)

from which priority is claimed.

— is (are) attached. — will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. 120 is itself entitled to priority from a prior foreign application then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

## 10. Fee Calculation (37 CFR 1.16)

### A. Regular application

CLAIMS AS FILED					
Number Filed	Number Extra	Rate	Basic Fee 37 CFR 1.16(a)	\$690.00	
Total Claims 37 CFR 1.16(c)	26 - 20 =	6	X	\$18.00	\$108.00
Independent Claims 37 CFR 1.16(b)	2 - 3 =	--	X	\$78.00	--
Multiple dependent claim(s), if any 37 CFR 1.16(d)			X	\$260.	0.00

— Amendment canceling extra claims enclosed.

Amendment deleting multiple-dependencies enclosed.  
Fee for extra claims is not being paid at this time.

**NOTE:** If the fees for extra claims are not paid on filing they must be paid or the claims canceled by amendment prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 CFR 1.16(d).

**Filing Fee Calculation** \$ **798.00**

**B. Design Application**  
(\$310.00 – 37 CFR 1.16(f)) **\$ 310.00**  
**C. Plant Application**  
(\$480.00 – 37 CFR 1.16(g)) **\$ 480.00**

**11. Small Entity Statement(s)**

X Statement(s) that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is (are) attached

**WARNING:** "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refining of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 USC 119(e), 120, 121 or 365(c) of a prior application or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to a statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 CFR § 1.28(a).

*"Small entity status must not be established with the person or persons signing the...statement can unequivocally make the required self-certification" M.P.E.P. § 509.03, 6<sup>th</sup> ed., rev. 2, July 1996 (emphasis added).*

(complete the following, if applicable)

— Status as a small entity was claimed in prior application U.S. Serial No. filed on     
— from which benefit is being claimed for this application under:  
    35 USC    119(e)  
              120  
              121  
              365(c),

and which status as a small entity is still proper and desired.

A copy of the Statement in the prior application is included.  
Filing Fee Calculation (50% of A, B, or C above) \$ 399.00

**NOTE:** Any excess of the full fee paid will be refunded if a statement and a refund request are filed within two months of the date of timely payment of a full fee. 37 CFR 1.28(a). The two-month period is not extendable under § 1.136. 37 CFR 1.28(a)

**12. Request for International-Type Search (37 CFR 1.104(d)) (complete if applicable)**

— Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

**13. Fee Payment Being Made At This Time**

Not Enclosed

No filing fee is to be paid at this time. (This and the surcharge required by 37 CFR 1.16(e) can be paid subsequently.)

Enclosed

basic filing fee

\$ 399.00

recording assignment (\$40.00; 37 CFR 1.21(h))  
[see attached COVER SHEET FOR ASSIGNMENT  
ACCOMPANYING NEW APPLICATION]

\$ \_\_\_\_\_

petition fee for filing by other than all the inventors  
or person on behalf of the inventor where inventor  
refused to sign or cannot be reached (\$130.00; 37  
CFR 1.47 and 1.17(i))

\$ \_\_\_\_\_

for processing an application with a specification in  
a non-English language (\$130.00; 37 CFR 1.52(d)  
and 1.17(k))

\$ \_\_\_\_\_

processing and retention fee  
(\$130.00; 37 CFR 1.52(d) and 1.21(l))

\$ \_\_\_\_\_

fee for international-type search report \$40.00; 37  
CFR 1.21(e))

\$ \_\_\_\_\_

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application which is abandoned for failing to complete the application pursuant to 37 CFR 1.53(f) and this, as well as the changes to 37 CFR 1.53 and 1.78 (a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid or the processing and retention fee of § 1.21(l) must be paid within 1 year from notification under § 53(l).

**Total fees enclosed**

\$ 399.00

**14. Method of Payment of Fees**

Check(s) in the amount of \$ 399.00

Charge Account No. 13-4213 in the amount of \$\_\_\_\_\_. A duplicate of this  
transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

## 15. Authorization to Charge Additional Fees

**WARNING:** If no fees are to be paid on filing the following items should *not* be completed

**WARNING:** Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 13-4213:

37 CFR 1.16(a), (f) or (g) (filing fees)

37 CFR 1.16(b), (c) and (d) (presentation of extra claims)

**NOTE:** Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims canceled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

37 CFR 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

37 CFR 1.17(a)(1)-(5) (application processing fees)

**NOTE:** "...A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a construction petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

37 CFR 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR 1.311(b).

**NOTE:** Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

**NOTE:** 37 CFR 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 CFR 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

## 16. Instructions As To Overpayment

**Note:** "...amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payor be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

credit Account No. 13-4213  
 refund



Brian J. Panglao,  
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Direct line: (505) 998-1505

Reg. No. 42,973

Tel. No. (505) 998-1500

Customer No. 005179

**Incorporation by reference of added pages**

*Check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional, provisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED*

Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed      Number of pages added five

Plus Added Pages For Papers Referred To In Item 4 Above      Number of pages added one

Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application      Number of pages added \_\_\_\_\_

Plus "Assignment Cover Letter Accompanying New Application"      Number of pages added \_\_\_\_\_

**Statement Where No Further Pages Added**

*(If no further pages form a part of this Transmittal then end this Transmittal with this page and check the following item)*

This transmittal ends with this page.

ADDED PAGES FOR APPLICATION TRANSMITTAL WHERE BENEFIT OF  
PRIOR U.S. APPLICATION(S) CLAIMED

NOTE: See 37 CFR 1.78(a).

**17. Relate Back**

**WARNING:** If an application claims the benefit of the filing date of an earlier filed application under 35 USC 120, 121 or (365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 USC 120, 121 or 365(c), (35 USC 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 USC 119, 365(a) or (365(b).) For a C-I-P application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

(complete the following, if applicable)

Amend the specification by inserting, before the first line, the following sentence:

**A. 35 USC 119(e)**

**NOTE:** "Any nonprovisional application claiming the benefit of one or more prior filed copending provisional applications must contain or be amended to contain in the first sentence of the specification following the title a reference to such each prior provisional application, identifying it as a provisional application, and including the provisional application number (consisting of series code and serial number)." 37 CFR § 1.78(a)(4)

"This application claims the benefit of U.S. Provisional Application(s) No(s).:  
APPLICATION(S) FILING DATE(S)

Serial No. 60/135,251 May 21, 1999

**B. 35 USC 120, 121 and 365(c)**

**NOTE:** "Except for a continued prosecution application filed under § 1.53(d) any nonprovisional application claiming the benefit of one or more prior filed copending nonprovisionals or international applications designating the United States of America must contain or be amended to contain in the first sentence of the specification following the title a reference to such each prior application identifying it by application number (consisting of the series code and serial number) or the international application number and international filing date and indicating the relationship of the applications." Cross-references to other related applications may be made when appropriate (See § 1.14(b).) 37 CFR § 1.78(a)(2)

This application is a continuation; continuation-in-part; divisional of copending application(s)

serial number filed on       .

International Application filed on        and which designated the U.S."

**NOTE:** The proper reference to a prior filed PCT application which entered the U.S. national phase is the U.S. serial number and the filing date of the PCT application which designated the U.S.

**NOTE:** (1) Where the application being transmitted adds subject matter to the International Application then the filing can be as a continuation-in-part or (2) it is desired to do so for other reasons, then the filing can be as a continuation.

**NOTE:** The deadline for entering the national phase in the U.S. for an international application was clarified in the Notice of April 28, 1987 (1079 O.G. 32 to 46) as follows:

"The Patent and Trademark Office considers the International application to be pending until the 22nd month from the priority date if the United States has been designated and no Demand for International Preliminary Examination has been filed prior to the expiration of the 19th month from the priority date and until the 32nd month from the priority date if a Demand for International Preliminary Examination which elected the United States of America has been filed prior to the expiration of the 19th month from the priority date, provided that a copy of the international application has been communicated to the Patent and Trademark Office within the 20 and 30 month period respectively. If a copy of the International application has not been communicated to the Patent and Trademark Office within the 20 and 30 month period respectively, the International application becomes abandoned as to the United States 20 or 30 months from the priority date

respectively. These periods have been placed in the rules as a paragraph (h) of § 1.494 and paragraph (l) of § 1.495. A continuing application under 35 U.S.C. 365(c) and 120 may be filed anytime during the pendency of the international application."

— "The nonprovisional application designated above, namely application \_\_\_\_\_, filed \_\_\_\_\_, claims the benefit of U.S. Provisional Applications(s) No(s).:

APPLICATION NO(S): \_\_\_\_\_

FILING DATE(S): \_\_\_\_\_

[Where more than one reference is made, please combine all references into one sentence]

#### 18. Relate Back -- 35 U.S.C. 119 Priority Claim for Prior Application

The prior U.S. application(s), including any prior International Application designating the U.S. identified above in item 17B, in turn itself claim(s) foreign priority(ies) as follows:

country	appln. no.	filed on
The certified copy(ies) has (have) _____ been filed on _____ in prior application ___, which was filed on _____ is (are) attached.		

**WARNING:** *The certified copy of the priority application that may have been communicated to the PTO by the International Bureau may not be relied on without any need to file a certified copy of the priority application in the continuing application.* This is so because the certified copy of the priority application communicated by the International Bureau is placed in a folder and is not assigned a U.S. serial number unless the national stage is entered. Such folders are disposed of if the national stage is not entered. Therefore such certified copies may not be available if needed later in the prosecution of a continuing application. An alternative would be to physically remove the priority documents from the folders and transfer them to the continuing application. The resources required to request transfer, retrieve the folders, make suitable record notations, transfer the certified copies, enter and make a record of such copies in the Continuing Application are substantial. Accordingly, the priority documents in folders of international applications which have not entered the national stage may not be relied on. Notice of April 28, 1987 (1079 O.G. 32 to 46).

#### 19. Maintenance of Copendency of Prior Application

NOTE: The PTO finds it useful if a copy of the petition filed in the prior application extending the term for response is filed with the papers constituting the filing of the continuation application. Notice of November 5, 1985 (1060 O.G. 27).

- A.  Extension of time in prior application  
(This item must be completed and the papers filed in the prior application if the period set in the prior application has run)
  - A petition, fee and response extends the term in the pending prior application until \_\_\_\_\_.
  - A copy of the petition filed in prior application is attached.
- B.  Conditional Petition for Extension of Time in Prior Application  
(complete this item if previous item not applicable)
  - A conditional petition for extension of time is being filed in the pending prior application.
  - A copy of the conditional petition filed in the prior application is attached.

#### 20. Further Inventorship Statement Where Benefit of Prior Application(s) Claimed

(complete applicable item (a), (b) and/or (c) below)

- (a)  This application discloses and claims only subject matter disclosed in the prior application whose particulars are set out above and the inventor(s) in this application are
  - the same
  - less than those named in the prior application and it is requested that the following inventor(s) identified for the prior application be deleted:  

---

(Type name(s) of inventor(s) to be deleted)

- (b)  This application discloses and claims additional disclosure by amendment and a new declaration or oath is being filed. With respect to the prior application the inventor(s) in this application are
  - the same
  - the following additional inventor(s) have been deleted

Fred Uricic, James Guthrie, Mike McBride  

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(Type name(s) of inventor(s) to be added)

- (c)  The inventorship for all the claims in this application are
  - the same
  - not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made
    - is submitted
    - will be submitted

#### 21. Abandonment of Prior Application (if applicable)

- Please abandon the prior application at a time while the prior application is pending or when the petition for extension of time or to revive in that application is granted and when this application is granted a filing date so as to make this application copending with said prior application.

NOTE: According to the Notice of May 13, 1983 (103 TMOG 6-7) the filing of a continuation or continuation-in-part application is a proper response with respect to a petition for extension of time or a petition to revive and should include the express abandonment of the prior application conditioned upon the granting of the petition and the granting of a filing date to the continuing application.

**22. Petition for Suspension of Prosecution for the Time Necessary to File an Amendment**

**WARNING:** "The claims of a new application may be finally rejected in the first Office Action in those situations where (A) the new application is a continuing application of, or a substitute for, an earlier application, and (B) all the claims of the new application (1) are drawn to the same invention claimed in the earlier application, and (2) would have been properly finally rejected on the grounds of art of record in the next Office Action if they had been entered in the earlier application." MPEP, § 706.07(b) 7th ed.

**NOTE:** Where it is possible that the claims on file will give rise to a first action final for this continuation application and for some reason an amendment cannot be filed promptly (e.g., experimental data is being gathered) it may be desirable to file a petition for suspension of prosecution for the time necessary.

(check the next item, if applicable)

— There is provided herewith a Petition to Suspend Prosecution for the Time Necessary to File An Amendment (New Application Filed Concurrently)

**23. SMALL ENTITY (35 CFR § 1.28(a))**

— Applicant has established small entity status by the filing of a statement in parent application Serial number on \_\_\_\_.

— A copy of the Statement previously filed is included.

**WARNING:** See 37 CFR § 1.28(a).

**WARNING:** "A small entity status must not be established when the person or persons signing the...statement can unequivocally make the required self-certification." M.P.E.P. § 509.03, 7<sup>th</sup> ed. (Emphasis added)

**24 NOTIFICATION IN PARENT APPLICATION OF THIS FILING**

— A notification of the filing of this (check one of the following)

- continuation
- continuation-in-part
- divisional

is being filed in the parent application, from which this application claims priority under 35 USC § 120.

Practitioner's Docket No. 30603UT1002**PATENT**

Applicant John J. Johnson, IV  Patentee \_\_\_\_\_  
 Application No.  Patent No. \_\_\_\_\_  
 Filed on May 18, 2000  Issued on \_\_\_\_\_  
Title: EMERGENCY RESPONSE VEHICLE

**STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor, I hereby state that I qualify as an independent inventor, as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office, with regard to the invention described in

the specification filed herewith, with title as listed above.  
 the application identified above.  
 the patent identified above.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

No such person, concern, or organization exists.  
 Each such person, concern or organization is listed below.

**NOTE:** Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

INDIVIDUAL  SMALL BUSINESS CONCERN  NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

INDIVIDUAL  SMALL BUSINESS CONCERN  NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

INDIVIDUAL  SMALL BUSINESS CONCERN  NONPROFIT ORGANIZATION

(Small Entity—Independent Inventor (7-1)—page 1 of 2)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

(check the following item, if desired)

NOTE: The following verification statement need not be made in accordance with the rules published on Oct. 10, 1997, 62 Fed. Reg. 52131, effective Dec. 1, 1997.

NOTE: The presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether a practitioner or non-practitioner, constitutes a certification under § 10.18(b) of this chapter. Violations of § 10.18(b)(2) of this chapter by a party, whether a practitioner or non-practitioner, may result in the imposition of sanctions under § 10.18(c) of this chapter. Any practitioner violating § 10.18(b) may also be subject to disciplinary action. See §§ 10.18(c) and 10.23(c)(15).\* 37 C.F.R. § 1.4(d)(2).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

John J. Johnson, IV

Name of inventor



Signature of Inventor

Date May 17, 2000

Name of Inventor

Signature of Inventor

Date \_\_\_\_\_

Name of Inventor

Signature of Inventor

Date \_\_\_\_\_

## PATENT APPLICATION

## EMERGENCY RESPONSE VEHICLE

5

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of the filing of U.S. Provisional Patent Application Serial No. 60, 135,251 entitled "Emergency Response Vehicle and Mobile Equipment Platform", filed on May 21, 1999, and the specification thereof is incorporated herein by reference.

10

BACKGROUND OF THE INVENTIONField of the Invention (Technical Field):

The present invention relates to emergency response vehicles, in particular to a small, maneuverable, motorized (combustible fuel and/or electrical) vehicle for transporting and spreading water and/or fire-fighting substances, such as, but not limited to, liquid, powder, foam, gas and/or gel, that is particularly useful for quick response to fires in situations where larger and more cumbersome traditional fire-fighting vehicles cannot gain access.

Background Art:

20        Fires are an ever-present threat to forests, buildings, homes and a variety of structures. Fires can also occur on bodies of water, such as when chemicals or oil have accumulated in them. Electrical fires and hazardous materials present further fire-fighting challenges in containing and eliminating the fire. One of the most difficult aspects of fighting a fire is accessibility. Remote areas deep within forests and narrow alleyways leading to secluded portions of buildings are examples of 25 areas where prior art fire-fighting vehicles either have extreme difficulty accessing or cannot access at all due to their large heavy size and cumbersome nature. Additionally, areas that are largely surrounded by fire where victims may be trapped are inaccessible to prior art fire-fighting vehicles.

30

In order to access these types of areas, fire-fighting personnel themselves proceed on foot and sometimes get near extremely dangerous flames and high-heat areas in order to contain and 5 eliminate fires, and rescue victims, thereby putting themselves in danger. These individuals have a limited ability to carry fire-fighting equipment to the area of interest and it is also highly difficult to replenish their supplies. In forest fire situations, fire fighters are often not allowed nor able to proceed near the target area but are instead required to stay a distance away from the fire. In these instances they often start "back" fires and clear areas for larger equipment and vehicles to pass 10 through, thereby allowing the fire to consume large areas before being contained or eliminated.

Prior art fire-fighting vehicles typically carry water in large tanks, hoses, and pumps for distributing the water and/or fire-fighting powders, foams, gases, and/or gels onto the affected areas. However, even the smaller vehicles, such as four-wheel drive and all-terrain vehicles that have been 15 equipped with tanks, pumps and hoses, are limited in their ability to access areas secluded by rough terrain or narrow clearance. The technology currently available is largely designed to fight fires in areas having sophisticated infrastructure, such as in cities with wide and level streets, that do not require the vehicle to be highly maneuverable, making tight turns and progressing over rough terrain.

20 Furthermore, prior art fire-fighting vehicles are not equipped for additional features that are critical in fire-fighting situations, such as the ability to carry a crew of fire-fighting individuals; transport vast quantities of water, powder, foam, gas, and/or gel; carry out victims; protect the fire-fighters who are operating the vehicle; and in particular, they are not equipped for efficient 25 maintenance of the vehicle and equipment on the scene or for fast and easy replenishment of supplies. Prior art vehicles are further not equipped to respond to a variety of emergency situations in addition to fires; for example, the ability to move through crowds in riot situations, protecting the occupants of the vehicle and providing crowd control with a water stream.

U.S. Patent No. 5,476,146 to Brown, entitled "Fire Fighting All Terrain Vehicle," discloses an example of prior art vehicles that have been developed in an attempt to address this need for

5 improved accessibility to fires. Brown describes an all-terrain vehicle having two tanks, at least four wheels, an improved turning radius, small size, and improved accessibility over rough terrain.

However, Brown does not address those critical additional needs set forth above.

10 The present invention overcomes the limitations of prior art fire-fighting vehicles and provides a variety of critical features making it an all-purpose and highly functional piece of equipment.

SUMMARY OF THE INVENTION (DISCLOSURE OF THE INVENTION)

15 The present invention comprises an emergency response vehicle comprising a wedge-shaped and/or cone-shaped nose, which facilitates access to areas that are inaccessible or not easily accessed by traditional emergency response vehicles, such as, but not limited to, fire trucks, ambulances and the like. In a preferred embodiment, the vehicle of the present invention comprises

at least three wheels forming, for example, a triangular wheel base. Of course, according to the present invention, a triangular wheel base optionally comprises more than three wheels, for example,

20 double wheels. Likewise, the present invention optionally comprises wheel bases other than triangular wheel bases, for example, but not limited to a polygonal wheel base comprising a polygon comprising more than three sides. In embodiments comprising wheels, the vehicle preferably comprises runflat tires on at least one of the wheels. The vehicle preferably comprises at least one

front wheel comprising an ability to rotate 360 degrees about an axis substantially orthogonal to the axis of wheel rotation for translational movement of the vehicle, and a leaf spring nose suspension

25 and/or a leaf spring suspension for a front mounted support, such as, but not limited to, a wheel, a track, and/or a ski. In a preferred embodiment, the vehicle comprises a triangular wheel base

comprising a front wheel beneath a wedge-shaped nose, and two rear wheels, each located on opposite sides of the rear of the vehicle. The vehicle preferably comprises at least one brake for

30 braking the movement of at least one wheel and/or track, a mechanical, electromagnetic, pneumatic,

and/or hydraulic braking system. The vehicle preferably comprises at least two separately controllable brakes, for example, but not limited to, separately controllable left and right brakes and/or front and rear brakes. Of course, concerted, traction control and/or antilocking braking systems are within the scope of the present invention. The vehicle preferably comprises at least one tank and at least one engine and/or at least one motor.

5 The vehicle of the present invention optionally comprises at least one retractable crew and/or litter rack. In a preferred embodiment, the vehicle comprises a cab for at least one driver and/or at least one radiation resistant and/or reflective window, such as, but not limited to, a fire and impact

10 resistant windshield.

According to a preferred embodiment, the vehicle comprises at least one engine selected from the group consisting of gasoline engines, diesel engines, air-cooled gasoline engines, air-cooled diesel engines, electrical motors and shielded electrical motors. The vehicle preferably comprises a steering mechanism comprising, for example, a chain and sprocket steering mechanism. The inventive vehicle also optionally comprises a hydraulic and/or pneumatic system. In embodiments comprising hydraulic and/or pneumatic systems, the vehicle optionally comprises hook-ups for attaching implements to the hydraulic and/or pneumatic systems. For example, in a preferred embodiment, the vehicle optionally powers tools, such as, but not limited to, machine tools, grounds-keeping tools, rescue tools, fire-fighting tools, life-saving tools, and the like.

20 The vehicle of the present invention preferably comprises compact external dimensions when compared to traditional emergency response vehicles, such as, fire trucks. In a preferred embodiment, the inventive vehicle comprises dimensions of approximately 4.5 meters in length, approximately 1.5 meters in width, and approximately 2 meters in height. The inventive vehicle preferably comprises at least one engine and/or motor comprising connectors that comprise disconnection and connection properties that allow for timely connection and disconnection of components. Such connectors are referred to herein as "quick disconnects," and are not limited to connectors for engines and/or motors because such connectors are useful for other connecting 25 features of the inventive vehicle. In embodiments comprising quick disconnects, removal of at least

one engine and/or motor is facilitated. In a preferred embodiment, removal of at least one engine and/or motor is facilitated by mounting the at least one engine and/or motor on a slideable cradle that slides away from the vehicle, completely out of the vehicle and/or to an interior position within the vehicle for rapid maintenance and replacement of the at least one engine and/or motor and/or other

5 components of the vehicle, for example, but not limited to, transmission components. The vehicle preferably comprises at least one crawler track for mobility, such as, but not limited to, a snowmobile track, a military tank track, an earthmoving tractor track, and the like. In such an embodiment, the vehicle comprises at least one crawler track in lieu of or in addition to at least one wheel and/or at least one other mobility device, such as, but not limited to, a ski.

10

According to a preferred embodiment, the inventive vehicle comprises a tilt-bed, a gimbal, a basket and a robotic arm. In such an embodiment, these four components optionally operate in a cooperative manner to perform tasks, such as, but not limited to, hazardous material disposal, wherein hazardous materials comprises, but is not limited to, bombs, explosives, chemicals, radioactive material, and the like. In an alternative embodiment, the vehicle comprises a vacuum generating mechanism for vacuuming materials, including, for example, hazardous materials.

15

The vehicle preferably comprises a rigid frame capable of withstanding impacts with obstacles in the path of the vehicle, such obstacles include, but are not limited to, doors, vegetation, walls and/or interior structures of a home and/or industrial building, fallen building debris comprising, for example, roof debris.

20

According to a preferred embodiment, the vehicle comprises at least one attachment point and preferably a plurality of attachment points located on the vehicle and/or frame suitable for 25 attaching equipment for airlifting and/or airdropping the vehicle.

25

The inventive vehicle preferably comprises a fire-fighting vehicle comprising at least one tank for containing a material or component capable of forming fire-suppression foam. In such a preferred embodiment, the capacity of the at least one tank provides for formation of at least approximately 30 34,000 liters of fire-suppressing foam. Accordingly, the vehicle optionally comprises a pump for

pumping material to and/or from the at least one tank. Alternatively, or in addition to, a pressure or gravity mechanism provides for transfer of material to or from the at least one tank. In a preferred embodiment, the vehicle comprises a main overhead tank and at least one auxiliary tank. In such an embodiment, the at least one auxiliary tank optionally comprises at least one modular auxiliary tank

5 optionally comprising at least one removably attachable hinged connection to the vehicle for rapid removal, filling and/or replacement. In such an embodiment, the vehicle optionally comprises at least one hingedly connected door for access to a main overhead tank and/or at least one auxiliary tank.

The vehicle preferably comprises a main overhead tank comprising a capacity of approximately 2250 liters. For delivery of material contained in at least one tank to a position and/or area remote from

10 the vehicle, the present invention comprises at least one delivery mechanism for delivering the material contained in the at least one tank wherein the at least one delivery mechanism comprises, for example, but not limited to, at least one mechanical pump and/or a pressurized vessel. In embodiments where material from at least one tank is mixed with another material, from a tank or other source, the present invention comprises an eductor for mixing material, for example, for mixing

15 material from a main overhead tank and at least one auxiliary tank. To facilitate installation and/or removal of a main overhead tank, a preferred embodiment of the present invention comprises at least one guide rail on a main overhead tank and at least one guide channel within the vehicle wherein the main overhead tank slides into the at least one guide channel via the at least one guide rail on the tank.

20

In a preferred embodiment, the vehicle comprises a body supportable on the ground by at least three wheels wherein the body comprises a rigid nose, comprising at least one shape selected from the group consisting of a wedge shape and a cone shape, and a compartment positioned aft of the nose for mounting at least one tank for containing a material; and at least one delivery

25 mechanism for delivering material contained in at least one tank to an area remote from the vehicle wherein the at least one delivery mechanism comprises at least one member selected from the group consisting of a mechanical pump and a pressurized vessel.

A primary object of the present invention is to provide a flexible multipurpose emergency response vehicle primarily for fire fighting, bomb disposal, crowd control, hazardous material removal, rescue and evacuation.

5        Another primary object of the present invention is that the vehicle is constructed to maximize operational time or "up-time" and minimize "down-time" thereby allowing for the vehicle to be readily operated, maintained and repaired by fire fighting personnel without the need for specialized shop tools and/or specialized diagnostic equipment. Features that facilitate quick pit stops for race cars are within the scope of the present invention.

10        Another primary object of the present invention is that it be small and compact enough to be flown in by a helicopter and/or descended with aid of a parachute.

15        Yet another primary object of the present invention is that the capacity to carry a sufficient amount of fire suppression material for a practical amount of coverage.

20        A primary advantage of the present invention is improved accessibility to remote areas.

25        Another advantage of the present invention is the ability to transport large quantities of fire suppression materials and equipment.

30        Still another advantage of the present invention is the ability to transport victims.

Yet another advantage of the present invention is the ability to protect the occupants from the 25 hazards of the exterior environment.

35        Yet still another advantage of the present invention is the ability to replenish supplies and perform maintenance on-site and at much faster rates than previously possible with prior art technologies.

Another advantage is the ability to work in a team comprising a plurality of vehicles, for example, vehicles in tandem, and/or in concert with conventional equipment thereby extending the capability of conventional equipment.

5        Other objects, advantages and novel features, and further scope of applicability of the present invention will be set forth in part in the detailed description to follow, taken in conjunction with the accompanying drawings, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and  
10      combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the specification, illustrate several embodiments of the present invention and, together with the description, serve to 15 explain the principles of the invention. The drawings are only for the purpose of illustrating a preferred embodiment of the invention and are not to be construed as limiting the invention. In the drawings:

20      Fig. 1a is a front perspective view of the preferred embodiment of the present invention for a emergency response vehicle showing the wedge-shaped nose;

Fig. 1b is a perspective view of a preferred embodiment of the present invention;

Fig. 1c is a perspective view of a preferred embodiment of the present invention;

25      Fig. 2 is a rear perspective view of Fig. 1a;

Fig. 3 is a top view of the frame of the preferred embodiment of the present invention showing attachment points to permit the vehicle to be air-dropped or air-lifted;

Fig. 4 is a side view of Fig. 3;

Fig. 5 is a first embodiment of the steering and shock mechanism for the front wheel of the present invention;

5

Fig. 6 is a second embodiment of the steering and shock mechanism for the front wheel of the present invention;

10 Fig. 7 is a side view showing the chain and sprocket steering mechanism of the present invention;

Fig. 8 is a top perspective view of Fig. 7;

15 Fig. 9 shows a retractable step of the present invention;

Fig. 10 is a side perspective view of the present invention showing one of the modular auxiliary tanks and the manner in which it is replaced;

20 Fig. 11 shows a manual nozzle pivot of the present invention for distributing fire suppression materials;

Fig. 12 is a cross-sectional view of the fire glass and interior plastic windshield of the present invention;

25 Figs. 13a-c show the hinged access lid to the main tank compartment and the hinged rear doors of the present invention;

Fig. 14 shows a main axle suspension of the present invention;

30 Figs. 15a-b show the tilt-bed and robotic arm embodiment of the present invention;

Fig. 16 shows an alternative crawler embodiment of the present invention having tracks for mobility;

5 Fig. 17 shows the retractable litter/crew racks and an optional driver entry hatch of the present invention;

Fig. 18 shows an alternative embodiment with an aerial refill tank having refill louvers;

10 Fig. 19a shows the refill louvers of Fig. 18 in the closed position for containing fluid within the aerial refill tank;

Fig. 19b shows the refill louvers of Fig. 18 in the open position for accepting fluid into the aerial refill tank;

15 Fig. 20 shows the hinged rear doors open and the main tank slid out of the main tank containing compartment;

20 Fig. 21 shows the means by which the main tank is inserted, guided, and retained within the main tank containing compartment;

Fig. 22 shows the guide rails and guide channels in relation to the frame around the main tank containing compartment and the main tank;

25 Fig. 23a is a side view of an engine cradle of a preferred embodiment of the present invention; and

Fig. 23b is an end view of an engine cradle of a preferred embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

(BEST MODES FOR CARRYING OUT THE INVENTION)

The present invention is a three-wheeled vehicle enabling a 360 degree nose wheel turning radius, that carries a total of approximately 2400 liters of water, powder, foam, gas, and/or gel for  
5 fire-fighting. A wedge-shaped nose improves access through gates, to push automobiles away from its path, to move through brush, and provide the driver with enhanced visibility. Other shapes that achieve the same result are within the scope of the present invention, for example, but not limited to, cone shapes.

10 In a preferred embodiment of the present invention, fire-fighting materials such as water, powder, foam, gas, and/or gel are contained in one main approximately 2250 liter tank atop the vehicle and two auxiliary approximately 75 liter tanks, each modular and hingedly-mounted on each side of the vehicle for fast replacement. The vehicle optionally comprises oxygen tanks and/or air for the occupants, as well as exterior "fire glass" protecting the occupants driving the vehicle. This

15 additionally enables the vehicle to transport and spread HALON® fire extinguishing agents (registered trademark of Allied Chemical Corporation, Morristown New Jersey) and/or dry chemical powder to fight Class C fires. "Runflat" tires are optionally provided, such as those found on military and/high security vehicles, to improve endurance. In a preferred embodiment, tanks (including fuel tanks and/or batteries and/or fuel cells) as well as the engine and/or motor can be removed in a

20 matter of minutes and replaced on-site for fast maintenance and replenishment of supplies. Litter racks are optionally provided on each side of the vehicle that can be folded up against the sides of the vehicle in a vertical position when unused, or unfolded into the horizontal position for transport of a crew of up to six individual fire fighters and/or assorted equipment.

25 In a preferred embodiment, a main tank is equipped with an emergency dump and can be removed and replaced. In this embodiment, a top wall of the main tank can also be a fast-refill wall that has a series of louvers and control for nearly instantaneous refill. When gas fire extinguishing agents are used, appropriate gas tanks are used. If the main tank is removed, victims can be protectively transported within the space previously occupied by the main tank. Bomb disposal and

30 removal of hazardous materials can also be accomplished with the invention. Other features

optionally include a trailer hitch, optional electrification of the exterior panels, chain belt-drive, robotics arms and television operation. The vehicle optionally comprises the ability to provide a source of power for auxiliary equipment, such as, but not limited to, pneumatic, hydraulic, electrical, mechanical and other equipment. For example, drills and/or cutting tools, along with JAWS OF

5 LIFE® (a registered trademark of Hurst Performance, Inc., Warminster, Pa) type of devices comprising, for example, power operated pry bars, for extracting people from collapsed structures are within the scope of the present invention. In general, the vehicle is transportable by hovercraft and/or pontoon in addition to usual trailers for improved access to fires. In an alternative embodiment of the present invention, the vehicle is amphibious.

10

The present invention comprises a multipurpose emergency response vehicle ("vehicle") and/or mobile equipment platform comprising enhanced accessibility to remote areas, fast replenishment capabilities and maintenance, and increased ability to provide fire suppression materials and personnel. First, an overview of the basic components of the invention is described.

15 15 One object of the invention is that it is constructed to minimize down-time, for example, through the use of fundamental physical, mechanical and/or electrical equipment. In a particular embodiment, the vehicle is operable without a computer control unit and/or sophisticated electronics. In such an embodiment, the vehicle is readily operated, maintained and repaired by fire fighting personnel. In this electrically unsophisticated embodiment, the vehicle is relatively immune to failure of an

20 20 electronic circuit. Of course, a diesel engine that relies on glow plugs, as opposed to electrically operated spark plugs, optionally provides for an even more durable configuration. Consider also, for example, a steering mechanism that comprises a quite simple chain and sprocket, akin to bicycle/motorcycle components; if something should go wrong in the field, it can be fixed in the field with basic tools as opposed to specialized diagnostic equipment and computers.

25

The present invention is not a retrofit to an all-terrain-vehicle, motorcycle, JEEP® vehicle (registered trademark of Chrysler Corporation, Auburn Hills, MI), HUMVEE® truck (registered trademark of AM General Corporation, South Bend, IN), or pick-up truck, with fire fighting equipment adaptations. Of these vehicles, those that are small enough to be carried by a helicopter cannot 30 30 carry enough load, and those that can carry enough load are too heavy and/or cumbersome to be

carried by a helicopter. Unlike these other presently available vehicles, the present invention is a dedicated emergency response vehicle that does not utilize cabs and/or chassis manufactured by, for example, but not limited to, Ford, Chevrolet, or Mack corporations, as do most other fire fighting equipment. However, wherever possible, off-the-shelf parts are used to keep costs down and allow  
5 fast replacement.

The frame of the vehicle is preferably rigid and strong. Frame members are preferably made from standard available metal, for example, two inch x two inch x 1/4 inch thick steel tubing that is welded, and/or by two inch x six inch x 1/4 inch steel tubing. However, these dimensions can be

10 altered depending on, for example, specific applications, etc. Heavy steel tubing provides strength and rigidity for pushing through obstacles as well as increased protection for the driver, occupants, and/or equipment of the vehicle. Should the vehicle encounter a high impact or rollover, the occupants are protected. Furthermore, the driver's seat and safety belts are similar to those found in racing vehicles that provide for added safety and quick ingress and egress. In an alternative  
15 embodiment, the vehicle is operable without an occupant through, for example, a cable and/or remote communication means, such as, electromagnetic transmission. In such alternative embodiments, the vehicle comprises, for example, a control and/or retrieval mechanism should injury or harm threaten a driver, occupant or the vehicle itself. Such cable and/or remote communication and control means are well known in robotics and space vehicle arts and are within the scope of the  
20 present invention. Of course, the vehicle optionally comprises at least one cable attachment for transmission of material for life-support and/or fire-extinguishing and/or communication with an occupant, other individual, and/or the vehicle.

According to a preferred embodiment, within a basic vehicle platform, approximately 60 to 70  
25 percent of all basic functions are served, and the remaining 30 to 40 percent of specific functions are served with optional equipment. The vehicle is highly adaptable to the given needs of a particular user, such as a local fire department, or a national forest fire fighting crew.

The outer "skin" of the vehicle optionally comprises a steel skin that is welded into place and/or a plate-type skin, for example an 1/8 inch aluminum plate, that is riveted to an internal frame.

The advantage of the flat plate-type skin is that if one portion of the vehicle or the skin is damaged, only that plate needs to be replaced. This can be done quickly and economically. When used in riot

5 crowd control situations, an electronic non-tampering skin can be installed on the vehicle to prevent people from touching the vehicle without sustaining a mild electrical shock. In such instances, gas tanks comprising tear gas and/or other crowd dispersal gasses are fitted. Furthermore, the pump and nozzle can be used to spray water or other chemicals onto the riotous crowd when necessary.

10 In a preferred embodiment, the vehicle comprises a gas engine, such as, but not limited to, a Volkswagen corporation 1800cc air-cooled gasoline engine. Alternatively a diesel engine can be used, such as, but not limited to, a Motorenfabrik HATZ GmbH & Co. KG four cylinder air-cooled diesel engine. Of course, liquid cooled engines are also within the scope of the present invention as are electrical motors. In a preferred embodiment, a shielded electrical motor is used, optionally

15 comprising isolation of electrical sparking discharge, for example, but not limited to, a motor shrouded by an inert gas. In instances where sparks from an electrical motor are not detrimental to operation, then further precautions are not needed. In addition, an alternative embodiment comprises a hydraulic drive driven by an electric motor and/or fuel combustion engine. Such hydraulic or hydrostatic drive units for transmitting power to traction devices, such as wheels, are

20 known in the art of, for example, golf course maintenance equipment (for example, for raking steeply walled sand traps) and military equipment. Hydrostatic travel or drive transmissions, such as, but not limited to those manufactured by Haaglunds corporation and/or Brueninghaus Hydromatik GmbH, are within the scope of the present invention. In a preferred embodiment, at least one transmission is used, comprising, for example, a Volkswagen corporation transaxle or Haaglunds hydrostatic

25 drive. In a preferred embodiment, the vehicle comprises a slideable engine cradle that preferably comprises 1 1/8 inch square steel tubing. In a preferred embodiment, the vehicle comprises at least one hydraulic clutch.

Preferably the main axles are 3 1/4 inch solid steel with tapered bearings, such as, but not limited to, TIMKEN® (registered trademark of the Timken Company, Canton OH) tapered bearings. In a preferred embodiment, a vehicle nose wheel assembly comprises a swivel fork. According to a preferred embodiment, a steering assembly comprises a chain and sprocket mechanism and/or a 5 hydraulic mechanism. In embodiments comprising a hydraulic steering mechanism, the mechanism is powered by the power source, whether it be electrical and/or fuel combustion. For embodiments comprising an electrical system, voltage comprises any appropriate voltage or voltages, for example, but not limited to, 5, 6, 12 and/or 24 volts. In general, fuel combustion engines that rely on electrical spark plugs operate on 6, 12, and/or 24 volt systems.

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In a preferred embodiment, the present invention comprises at least one hydraulically driven approximately 30-gallon per minute, approximately 200 pounds per square inch pump, such as, but not limited to, pumps made by the Hypro corporation (e.g., fluid handling pumps, namely, piston pumps, roller pumps, diaphragm pumps, centrifugal pumps, flexible impeller pumps, and/or gear pumps). In a preferred embodiment, the pump and nozzle of the vehicle are capable of shooting a stream of foam approximately 25 meters, therefore, the vehicle need only get within approximately 15 10 meters of the object to be sprayed to adequately cover the object. In a preferred embodiment, a main overhead tank comprises a capacity of preferably approximately 2250 liters and preferably comprising polypropylene. In a preferred embodiment, the present invention comprises at least one 20 and preferably at least two modular auxiliary tanks preferably comprising individual capacities of approximately 75 liters, preferably for holding 150 liters of fire-extinguishing agents/material, or agents that assist in fire-extinguishing, such as, but not limited to, surfactants. Alternatively any or all of the tanks can carry other fire-suppressing materials, such as, but not limited to, gels.

25 In a preferred embodiment, an eductor mixes water, preferably from the main overhead tank, and surfactant, preferably from an auxiliary tank, in approximately a 14:1 ratio to produce fire-suppressing foam. Mixing 2250 liters of water with 150 liters of surfactant produces approximately 34,000 liters of foam. This amount is sufficient to cover a 50 meter by 60 meter area, 5 cm deep. In a preferred embodiment, the nozzle and eductor comprise, for example, those sold by Elkhart Brass, 30 a fire fighting and fire protection equipment supplier. According to a preferred embodiment of the

present invention, nozzle and foam equipment comprises, but is not limited to, automatic nozzles, constant gallonage nozzles, and select gallonage nozzles and inline and by-pass foam eductors and foam aeration tubes. There are occasions in fire suppression when greater expansion rates of foam solution are needed; such as when polar solvent fuels are involved; when using protein or fluoroprotein foam; or when securing a spill. For these special situations a foam aeration tube can be quickly and easily attached to a combination fog nozzles in order to achieve a higher expansion rate of a foam solution, for example, up to approximately 15:1 in some cases.

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When an exterior water source is available, such as from a swimming pool, lake, fire hydrant, or from another fire fighting vehicle, then a main overhead water tank is optionally filled with surfactant and the vehicle can put out approximately 500,000 liters of foam. Of course, other agents may be suitable in such situations. In addition, if a source of compressed gas is available, the 15 vehicle of the present invention optionally comprises a hook-up to this source for propulsion of gas, foam, powder, and/or other fire extinguishing material.

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According to a preferred embodiment, the vehicle comprises a compact stature, for example, approximately 4.5 meters in length, 1.5 meters in width, and 2 meters in height. Given the particular 20 dimensions and components just described, such a vehicle weighs approximately 1,300 kilograms when empty and approximately 3,600 kilograms when fully loaded. In a preferred embodiment, such a vehicle attains a speed of approximately 30 kilometers per hour when completely loaded, and provides a great deal of torque, pushing and pulling power. Such engines as described earlier, available with ratings of approximately 54 horsepower, are optionally capable of achieving this 25 performance.

According to a preferred embodiment, the vehicle will meet, set and/or exceed all ASTM and ISO national and international standards.

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Referring to the drawings, Fig. 1a shows a front perspective view of the preferred

5 embodiment of the present invention for an emergency response vehicle **10** having a wedge-shaped nose **14** for maneuvering through brush, trees, automobiles, or any obstacle in the path of the vehicle **10**. The wheel base is triangular. Attachment points **12** are provided for cargo-type parachutes to permit the vehicle to be airdropped, or alternatively to be airlifted. At least one step **16** is provided for the driver of the vehicle **10**. A steering mechanism and a nose suspension **100** provides for 360-degree rotation of a front wheel **20** that is described further below. All tires mounted on wheels **20**, **22**, and **24** are preferably "runflat" and are particularly durable, and can run even though the air has been released from them. The wheels **20**, **22**, and **24** and associated tires can be those made, for example, by Hutchinson for military applications. While one front wheel **20** is shown in Fig. 1, a dual-wheel assembly is alternatively used to provide added stability and improved ability to move across rough terrain.

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A primary nozzle location **26** is positioned on the nose **14** for distribution of water or fire suppression material. A tapered windshield frame **28** provides for a front windshield **30** and side windows **32**, described in further detail below also optionally acts as a roll-bar for protection of occupants. At least one driver access door **34** permits easy access to the cab of the vehicle **10**. The cab can accommodate either one or two persons, but preferably just one. Referring to Fig. 1b and Fig. 1c, the at least one door **34** optionally comprises hinges to facilitate opening outward and upward, or outward and forward, or alternatively the at least one door opens to the left or right. Hydraulic cooling is provided within the cooler area designated **40**.

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Modular auxiliary tanks are located within the area referred to as **38** and are typically used for storing surfactant.

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The rear portion of the vehicle **10** comprises the main overhead tank within the tank area designated **36**. A steering mechanism **200**, is described further below, is housed underneath a steering mechanism access door **42**. It can be seen from Fig. 1a that the nose **14**, a sloped front undercarriage **44**, and the windshield frame **28** together taper out and away from obstacles that the vehicle **10** may encounter in its path, thereby allowing the vehicle **10** to easily push through obstacles and force them aside. The heavy steel construction of the vehicle **10** makes it particularly easy to move obstacles. The undercarriage **44** is preferably painted light gray in color to enable operators to spot fluid leaks or stress cracks instantly. Oxygen and/or air tanks are located within the air tank area generally shown at **60**, and provide oxygen and/or air to the cab of the vehicle **10** and/or to the main tank compartment within **36** for the driver and/or passengers.

Referring to Fig. 2, a rear perspective view of the apparatus of Fig. 1a is shown. The engine is substantially located within the engine space shown at **54**. The engine space designated **54** is accessible and the engine is optionally slid out from the engine compartment upon its sliding cradle for fast maintenance and/or replacement. Engine exhaust travels from an exhaust system junction **58** and out through dual exhaust pipes at **50** and **50'**. An hydraulic fluid reservoir is located within the reservoir area shown at **48**.

At least one inspection and maintenance port **56** is provided on each side of the vehicle for access to, for example, quick disconnects, engine/transmission compartments, for maintenance, engine/transmission removal, etc. Hinged doors **52** and **52'** swing open to provide access to the main overhead tank as will be described further below. A trailer hitch receiver **46** is provided to allow the vehicle **10** to pull additional loads. For example, a standard trailer hitch can accomplish this task.

For example, a firehose trailer can be hooked up to a trailer hitch in trailer hitch receiver **46** such that the vehicle **10** can lay out whatever amount of hose is needed behind it to reach the emergency site. This enables the vehicle **10** to be connected to an external water and/or other fire suppression material source when necessary. As mentioned earlier, the undercarriage and/or frame of the vehicle preferably comprises a color that easily shows spots of operational fluids, for example, light

grey. Additionally, heat reflective surfaces and/or surface colors are preferred, such technology is known to those of ordinary skill in the art of space vehicles.

Figs. 3 and 4 provide a top view and side view respectively of a frame 70 of the vehicle 10.

5 Attachment points 12 are shown in various locations on the frame 70 for airlifting or airdropping the vehicle 10 from and to an emergency site. For example, the vehicle 10 can be carried by a helicopter and/or dropped by cargo-type parachutes to a site. The nose 14, and the two modular auxiliary tank compartments 38 and 38' are shown in Fig. 3. The tip 76 of the nose 14 shows a plurality of bracings to both support the nose wheel structure and provide additional strength in the  
10 nose 14 when ramming into obstacles in the path of the vehicle 10, such as when wedging through doorways, between walls, between cars, etc. This is different from the energy-absorbing devices used on automobiles that are intended to collapse rather than remain rigid upon impact. The nose 14 is intended to be rigid and to remain rigid upon impact. The slope of nose 14 also provides the driver with a high degree of visibility. The cab of the vehicle 10 rests upon the area shown generally  
15 at 72. A sliding engine cradle rests upon the supports shown in the area designated as 74.

Given that the vehicle 10 comprises the ability to maneuver through a variety of terrain and through a variety of obstacles, two types of steering are optionally provided. The first is a 360 degree nose wheel discussed above that minimizes the possibility of the vehicle from becoming trapped by  
20 an inability to turn the wheels, and the second is the ability to steer the vehicle by using brakes that are on alternate sides of the vehicle. The vehicle has two brake pedals, one for the left brakes and one for the right brakes so that the driver can lock up, as an example, the right brakes, leaving the left side free to drive the vehicle forward, thereby pivoting the vehicle in a right-hand direction.

25 Fig. 5 shows a first, shock absorber, embodiment for a steering mechanism and a suspension 100 of the present invention to control the front nose wheel 20 seen in Figs. 1 and 2. A keyed and threaded lock 102 is connected to a main spindle 104, which in turn supports rocker arms 106 and 106'. The main axle is shown at 110 and 110' for the front nose wheel 20. Pivot points at 108 and 108' allow the rocker arms 106 and 106' to pivot. Shock absorber mounting points are  
30 shown at 112, 112', 114, and 114' for mounting, for example a coil over shock type shock absorbers.

Fig. 6 shows a second, leaf spring, embodiment for a steering mechanism and a suspension 150 of the present invention to control the front nose wheel 20 seen in Figs. 1 and 2. As in Fig. 5, the keyed and threaded lock 152 is connected to the main spindle 154. A leaf spring retaining rod is 5 shown at 164. A retaining rod housing 170 houses a leaf spring retaining rod 164. Leaf springs are shown at 162 and 162'. A tension bolt 166 and a nut 168 fit through a tension plate 160 and enter a threaded hole 156. Upper shock-absorber mounting pins are shown at 158 and 158'. Rocker arms 172 and 172' are connected to a leaf spring saddle made up of 176 and 176'. The rocker arm shafts are shown at 174 and 174'. Main axles are shown at 180 and 180' with lower shock-absorber 10 mounts.

Fig. 7 is a side view and Fig. 8 is a top perspective view of the chain and sprocket steering mechanism 200 of the present invention. In this embodiment, a pivot assembly 202 optionally 15 comprises either the main spindle 104 or 154 discussed above with respect to Figs. 5 and 6. Sprockets 204, 208, and 222 optionally comprise, for example, 40-tooth sprockets, and sprocket 212 20 optionally comprises, for example, a 10-tooth sprocket, thereby giving the driver a four to one mechanical advantage when steering. A steering wheel 216 is provided in the cab of the vehicle 10 and is connected via a universal joint 218 to a heim joint 214 and miter gears 220 and 220'. While Fig. 7 shows chains 206 and 210 in opposite positions as shown in Fig. 8 the principle of operation is 25 the same. At least one chain 206 turns due to the rotation of the sprockets 204 and 208, while at least one chain 210 turns due to the rotation of the sprockets 222 and 212, seen best in Fig. 8. The end result is that the steering wheel 216 turns the pivot assembly 202 in the same direction as the steering wheel 216 is turned.

Fig. 9 provides details of an optionally retractable step 16 as shown in Fig. 1a. To operate the 25 step 16, a handle 78 is pulled down to allow the operator to swing a step 86 down into a usable position. The step 86 is connected via a pivot point 88 to a clevis fork and pin 84 which is in turn connected to a connecting rod 82 to a second clevis fork and pin 80 to a second pivot point 90 to the handle 78. The second pivot point 90 is mounted via a thru-bolt to a bracket mounted in the cockpit.

Referring to Fig. 10, a side modular auxiliary tank 300 is shown. In a preferred embodiment, the vehicle comprises two tanks, one on each side, and each are preferably approximately 75 liter tanks. According to such an embodiment, both tanks operate in the same manner. An auxiliary tank frame 304 is hinged onto the vehicle via a hinge at 310. The modular tank 308 is inserted into the tank frame 304 via an insertion end 306. Then the tank frame 304 is swung into the vehicle auxiliary tank frame compartment 302. Preferably each of these tanks contain a material, such as, but not limited to, surfactant that can then be mixed with water from the main overhead tank to form a fire suppressing foam. In a preferred embodiment of the present invention, connections to a foam generating mechanism, as discussed above, comprise quick attachment and detachment

10 connectors.

Fig. 11 shows a manual (or alternatively hydraulic) nozzle pivot 26 of the present invention, seen in Fig. 1a near the tip of the nose 14 of the vehicle 10. Alternatively, an electronic nozzle pivot can be accommodated. A nozzle clamp assembly 94 has a nozzle opening 92 for clamping a manufactured nozzle to the pivot assembly. Clamp bracket 93 holds assembly 94. Chain sprockets 96 and 96' turn a pivot shaft 95. Alternatively, either or both of chain sprockets 96 and 96' optionally comprise spur gears. A rotation shaft 97 optionally comprises the ability to be manually and/or hydraulically rotated independent of pivot shaft 95.

Fig. 12 shows a cross-section of a portion of the fire resistant, impact-resistant, and cooled glass 400 used in the windshield 30, side windows 32, and doors 34 as seen in Fig. 1a. A metal frame 402 supports and contains at least one inlet 404 for the entrance of cooling air, that optionally comprises cooling air supplied from an optional air-conditioning unit in the vehicle. The cooling air is fed through cooling air passage positioned at 406 and 412 between the exterior glass 408 and an interior glass comprising glass and/or preferably plastic 410. This passage can be approximately 3/8 to 1/2 inch wide. Preferably, the exterior glass 408 comprise a thickness of approximately 1/4 inch heat resistant glass, such as FIREGLASS™ (trademark of Technical Glass Products, Kirkland, WA) and preferably interior glass 410 is comprised of approximately 1 inch thick LEXAN® (a registered trademark of General Electric Corporation, Schenectady, MA) impact resistant polycarbonate. The LEXAN® glass comprises bulletproof qualities. In the event that a tree or something else explodes,

the debris or shrapnel is deflected away from the driver. The glass assembly of the aforementioned preferred embodiment, allows for operation of the vehicle in close proximity to high heat areas that cannot normally be tolerated by conventional vehicles. According to the description herein, the term glass refers generally to a see through material comprising glass and/or other materials. In

5 alternative embodiments, it may be necessary to minimize occupant exposure to radiation (electromagnetic, including heat, and/or particle radiation). In such embodiments, glass comprises radiation reflective and/or impermeable glass and/or glass area is minimized.

Figs. 13a-c show a perspective view of a steel main overhead tank compartment 500, the

10 main overhead tank within a compartment 502, and a hinged access lid 504 to the main tank respectively. According to several embodiments, this particular assembly is absent from the vehicle when the assembly shown in Figs. 18 - 22 is used. When rear doors 52 and 52' are opened and access lid 504 is opened, main tank 502 is easily accessed for fast removal when empty or to refill. An emergency (for example, approximately 8 inch) butterfly valve is provided with the main tank 502  
15 for emergency dumping of its contents. This is particularly useful when there are victims, fire fighters, or other animals, or objects, needing rapid transport away from the site. Once the main tank 502 is removed from its compartment within 500, individuals can ride within the protective confines of the compartment 500. Furthermore, the air and/or oxygen supply to the cab can additionally be routed into compartment 500 to sustain these individuals. Of course, individual tanks of air and/or  
20 oxygen are optionally provided in the vehicle to sustain individuals in need.

Fig. 14 shows a main axle suspension 600 of the present invention. A rocker arm 602 connects to a main axle 620 via a bearing assembly 604. A chain 606 runs between the sprocket 604 and a transaxle 624. A leaf spring 608 is provided tension by a leaf spring tension bolt 610. A roller 612, a bell crank 614, operate through a bell crank pivot 616 and a spring 618 to the main axle. The main frame is shown at 622.

Turning now to Figs. 15a and 15b, an alternative embodiment for the vehicle 10 is shown wherein an assembly 700 comprising a tilt-bed 706 and a robotic arm 702 is useful for, for example, 30 bomb disposal. According to this particular embodiment, the tilt-bed 706 is hydraulically operated to

place a gimble and/or a basket 704 in close proximity to a bomb or explosive device. In such an embodiment, the tilt-bed 706 is installed in place of a water tank, for example, the main water tank. Once the tilt-bed 706 is elevated, the robotic arm 702 is extendable and useable for placing the bomb or explosive device into a gimbal and/or a basket 704. An extension 708 of the robotic arm 702 is used for finer control of the robotic arm 702. Once the tilt-bed 706 is lowered into the horizontal position, the explosive device is transportable to another site by the vehicle 10, and then dumped by raising the tilt-bed 706 again. The tilted bed 706, when in the raised position, optionally serves as blast protection for the vehicle 10 during this type of operation.

10 Fig. 16 shows an alternative traction means comprising a crawler mechanism wherein tracks 750 either replace or are added in addition to the wheels for additional mobility. Fig. 17 shows optional litter or crew racks 800 that can be affixed to either or both sides of the vehicle 10. The litter or crew rack 800 is stored in an upright vertical position against a side wall of the vehicle 10 at 802. It is optionally hingedly connected to the side wall. When swung outward into the open horizontal position, a single litter or crew rack 800 can hold up to approximately three firefighters or a variety of equipment. When the litter or crew rack 800 is in the open horizontal position, it can also be used to haul injured people on stretchers or litters. Additionally, crew equipment can be loaded on top of the vehicle 10 for transport to the site. An optional driver entry hatch 804 is located on the ceiling of the cab 810 for an alternate entry into the vehicle 10. The hatch 804 is optionally hingedly connected to the ceiling of the cab 810 at 806. The entry hatch 804 swings down to the closed position and latches securely. In the event that branches or other debris might jam the hatch, explosive bolts located at 808 and 808' enable removal of the hatch to let the driver depart safely.

25 Referring to Fig. 18, an optional aerial refill unit 900 that can be used in place of the main overhead water tank described above is shown. Aerial refill unit 900 is structurally strong enough to withstand the impact of several hundred or a thousand pounds of water dropped onto it. Because the water is deformable, it is unlikely to impact the unit with the same direct force distribution as a potentially damaging, non-deformable solid of the same weight; thus, the vehicle and aerial refill unit 900 can safely withstand the impact of the water (or other such deformable material). Refill 30 louvers are shown which make up the top surface of the aerial refill unit 900 of Fig. 18. In Fig. 18

and Fig. 19a, the refill louvers are shown in the closed position, thereby containing the fluid within the aerial refill unit 900. In Fig. 19b, the refill louvers are in the open position, thereby allowing water dropped from above aerial refill unit 900 to fall through the louvers and into aerial refill unit 900.

When in the open position, as shown in Figs. 19b, the water that is dropped from above, for example

5 from a helicopter, will primarily impact the bottom of the aerial refill tank 902, shown in Fig. 20. The aerial refill tank 902 slides in and out of the main overhead tank compartment that previously held an overhead water tank described above. The difference in the aerial refill tank 902 is that the top surface is completely open to receive water through the aerial refill louvers 904, seen in Figs. 19a and 19b. In Fig. 19a, a handle 906 is moved (e.g., pushed) to the right in order to open the

10 louvers 904, and in Fig. 19b the handle 906 is pulled to the left in order to close the louvers 904 and contains the fluid underneath in the aerial refill tank 902, shown in Fig. 20. With the refill louvers closed, the aerial refill tank 902 is also protected from the entry of debris. Because the main overhead water tank, as well as the aerial refill tank 902 is preferably made of a polyethylene plastic that cannot withstand fire or embers, it is important that the tanks be inserted into the steel tank

15 compartment in the rear of the vehicle 10. Returning to Figs. 19a and 19b, the handle 906 is located in the cab within easy reach of the driver. When the driver moves or pushes the handle, as shown in Fig. 19a, the connecting linkage members 910 and 912 cause the louvers 904 to be raised into the open vertical position shown in Fig. 19b. The top of the aerial refill tank that is shown generally at 914 in Figs. 19a and 19b provides for water overflow and assures that the louvers always act freely

20 and are not restricted by the water. After the water is placed into the tank, the driver moves or pulls the handle 906 back to close the louvers 904. In a preferred embodiment of the present invention, the structural frame of the aerial refill unit 900 shown at 908 acts both as a support framework for the louver assembly, as well as a funnel to help direct the water into aerial refill tank 902.

25 Fig. 21 shows the manner in which the main overhead water tank which is stored within the main overhead tank compartment 500, and optionally comprises an aerial refill tank 902, fits into the main overhead tank compartment 500. For example, an aerial refill unit 902 is shown as it is inserted into the main overhead compartment 500. Guide rails 916, 916' which are molded into the tank, fit into guide channels 918 and 918' that are mounted within the compartment 500. The tank 902 is

30 then manually pushed (or pushed or pulled through mechanized means) into the compartment 500.

where it fits snugly on all sides. Rear doors **52** and **52'**, for example as shown on Fig. 2, secure the tank **902** within the compartment **500**. Fig. 22 shows the tank **902** within the compartment **500** and the relationship of the guide rails **916**, **916'** and the guide channels **918** and **918'** in relation to the compartment **500** and to the structure of the aerial refill unit **900**.

5

The slideable engine cradle is shown in Fig. 23a and Fig. 23b. Quick disconnects are provided on the chain mechanism as well as on, for example, fuel, hydraulic, pneumatic, and/or electrical systems. Once the quick disconnects are disconnected, the slideable engine cradle is slid out of the back of vehicle **10** through opened door **54**. Then the damaged engine can be removed and a new one put in its place. A complete engine transmission change-out can be accomplished in approximately 20 minutes. In a preferred embodiment, when the engine comprises an air-cooled gasoline or diesel fuel engine, the use of radiators, hoses, and/or fluid leaks are eliminated and/or minimized such that the potential for incapacitation of the vehicle is minimized.

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15 Referring to Figs. 23a and 23b, an engine **1001** and a transmission **1002** comprise an assembly that is mounted in an engine cradle **1003**. The assembly is optionally secured through use of at least one engine mount **1008** and/or at least one transmission mount **1007**. The engine cradle **1003** rests and slides on the main frame member **1004** until the cradle **1003** butts to, for example, a quick disconnect mounting and an engine cradle aligning plate **1012**. When properly aligned, the  
20 engine cradle **1003** is secured to the main frame **1004** by means of a cradle lock **1009** and to the aligning plate **1012** by means of another cradle lock **1011**.

20

25 Drive chains **1014**, **1014'** are attached to transaxles **1005**, **1005'** and main axles **1006**, **1006'**. Disconnects, for example, quick disconnects, for fuel, hydraulic, pneumatic, electrical, etc. systems mounted in or to the aligning plate **1012** are connected to matching connections on the engine **1001**. Transaxles **1005**, **1005'** are secured to the cradle **1003** by means of, for example, pillow block bearings **1010**, **1010'**. The main axles **1006**, **1006'** are mounted to the main frame **1004** by means of the main axle housings **1013**, **1013'**.

Additional equipment that can be mounted upon, provided by, or enabled by vehicle 10 include auxiliary hydraulics, for example to power JAWS OF LIFE®, mowers, and hydraulic jacks.

An auxiliary air compressor can supply metal saws, weed-eaters, air chisels, air chain saws, air jacks, and airbags. In order to retrieve objects, winches, wrecker booms or robotic arms can be

5 mounted to vehicle 10. Lighting apparatuses can also be mounted to vehicle 10, such as emergency light bars, spotlights, searchlights, and work lights. Flammable gas detectors, toxic gas detectors, high temperature and explosive detectors can also be equipped on vehicle 10. Optionally, plow blades can be mounted upon the vehicle for snow or debris removal. A piercing nozzle and hook can be affixed to the vehicle. The piercing nozzle can be used to pierce, for example, a burning  
10 automobile and then to flood the interior with water or fire suppression material. Then the hook is used to drag the automobile, or other object, away so that it does not endanger nearby vehicles, structures, or objects.

15 In alternative embodiments, the vehicle optionally accommodates piercing nozzles, extendable tow hooks, winch assemblies and/or wrecker boom assemblies.

Another embodiment of the invention combines the wheel with the crawler embodiment and has both tracks and wheels for mobility. Communication gear that can be put into the present invention, but is optional includes radios, short waves, citizens band and handheld radios. A closed-

20 circuit television with surveillance cameras, robotics, and intercoms with the driver to the outside crew can also be included. Roof racks can be installed for equipment. Preferably additional driver air supply is approximately two hours, comprising two one-hour air bottles. If a driver enters into a toxic smoke area or toxic fumes of any kind, then the additional air supply provides driver safety. As described above, the air supply can be manifolded so that if people have to be evacuated, they can  
25 be provided with air in the tank compartment of the vehicle.

Robotic arms and tele-operated systems can be accommodated on the vehicle. Additionally, thermal imaging scopes can be mounted in the vehicle and used in conjunction with the robotic tele-operation systems. This would allow robotic location of people in damaged buildings. In riot or

30 crowd control situations, it could allow looters to be spotted in dark buildings.

The vehicle can also address hazardous materials applications. In these circumstances, the water tank can be emptied and then the pump reversed so that it creates a vacuum instead of a spray. At least approximately 2250 liters of hazardous material can then be pulled into the water tank. Alternatively, a pump or other mechanism for creating a vacuum is fitted to the vehicle to accomplish the same or similar result.

5 Additionally, one of the two air bottles for the driver can be replaced with HALON® for electrical fires, if necessary, and due to the enclosed design of the cab, the driver remains safe.

10

Industrial Applicability:

The invention is further illustrated by the following non-limiting examples. Applications for the emergency response vehicle include personal residences, particularly those that are of large acreage or those that are hard to access by the nearest fire department. National and state parks and forest areas, fire departments, police departments, island communities, industrial facilities, gated communities, the Federal Emergency Management Administration (FEMA), military installations, can all benefit from having this basic piece of equipment. Malls and parking garages are currently inaccessible to most fire fighting vehicles, but the present invention can fit easily into these structures. Having quick access to fire fighting equipment can prevent catastrophic losses and

20 tremendously reduce costs.

Typically, communities having population of less than 1,500 persons normally cannot afford a standard fire truck, ranging from approximately \$400,000 to \$750,000. Additionally these fire trucks, such as pumper trucks, require four trained professionals to operate. In areas where there

25 are beaches, islands and lakes, normally fire trucks are not available because they are too large. Stockyards, lumber mills, and cotton gins need fire protection, but they need something less expensive than the conventional fire truck, and they need something that can be operated by one person.

For facilities valued at above two million dollars, such as estates, homes, ranches, farms, commercial warehouses, shopping centers, port and dock facilities where conventional fire trucks cannot go, and for refineries, offshore rigs and Navy aircraft carriers, this vehicle is ideal. The vehicle also provides access to mines because of its small size. There currently is not water-borne

5 fire protection for marinas in the U.S. Therefore this vehicle mounted on a hovercraft (or optionally reconfigured for amphibious operation) could very easily access many boats. Of course, a more extreme configuration comprises features for implementing flight of the apparatus. For example, a vehicle structure comprising wings and/or at least one propeller would help to facilitate flight.

10 The water tank can instead be filled with liquid fertilizer, and spray bars used to fertilize crops or golf courses. Mowers can also be attached to the vehicle both for use in emergency situations or for off-time use to care for a golf course. For example, a single vehicle is optionally equipped with chemicals, water and/or tools for managing greens, sand traps, fairways, tees, and/or other specific areas of a golf course. When not in use for managing grounds, the vehicle is available for

15 emergency support during foul weather, illness, and/or feeding hungry workers and/or golfers. No strike devices for eliminating or dissipating lightening strikes are optionally mountable to the vehicle.

The preceding examples can be repeated with similar success by substituting the generically or specifically described reactants and/or operating conditions of this invention for those used in the  
20 preceding examples.

Although the invention has been described in detail with particular reference to these preferred embodiments, other embodiments can achieve the same results. Variations and modifications of the present invention will be obvious to those skilled in the art and it is intended to  
25 cover in the appended claims all such modifications and equivalents. The entire disclosures of all references, applications, patents, and publications cited above are hereby incorporated by reference.

CLAIMS

What is claimed is:

5        1. An emergency response vehicle, said vehicle comprising:

      a wedge-shaped nose;  
      a triangular wheel base;  
      at least one tank; and  
      an engine.

10

2. The vehicle of claim 1 further comprising at least one retractable rack.

3. The vehicle of claim 1 further comprising a cab for at least one driver and at least one window on said cab, said window comprising resistance to fire and impact.

15

4. The vehicle of claim 1 wherein said engine comprises at least one engine selected from the group consisting of gasoline engines, diesel engines, air-cooled gasoline engines, air-cooled diesel engines, electrical motors and shielded electrical motors.

20        5. The vehicle of claim 1 further comprising a chain and sprocket steering mechanism.

6. The vehicle of claim 1 further comprising at least one system select from a system consisting of hydraulic systems and pneumatic systems.

25        7. The vehicle of claim 1 wherein said vehicle comprises dimensions of approximately 4.5 meters in length, 1.5 meters in width, and 2 meters in height.

30        8. The vehicle of claim 1 wherein said engine comprises an engine fitted with quick disconnects, and wherein said engine is mounted upon a slideable engine cradle for sliding said engine out of the vehicle to facilitate maintenance and replacement.

9. The vehicle of claim 1 further comprising at least one crawler track for mobility.
10. The vehicle of claim 1 further comprising a tilt-bed, a gimbal, a basket and a robotic  
5 arm.
11. The vehicle of claim 1 wherein said at least one tank comprises at least one tank  
capable of delivering a component capable of forming at least approximately 34,000 liters of fire-  
suppressing foam.
- 10  
12. The vehicle of claim 1 further comprising a pump for pumping material from said at  
least one tank.
13. The vehicle of claim 1 further comprising a rigid frame for withstanding impacts with  
15 obstacles in the path of the vehicle.
14. The vehicle of claim 1 further comprising at least one attachment point located on  
said vehicle for airlifting and airdropping the vehicle.
- 20  
15. The vehicle of claim 1 wherein said triangular wheel base comprises a front wheel  
beneath said wedge-shaped nose, and two rear wheels, said rear wheels located on opposing sides  
of the rear of the vehicle.
- 25  
16. The vehicle of claim 15 further comprising runflat tires located upon at least one of  
said wheels.
17. The vehicle of claim 15 wherein said front wheel comprises 360 degree rotatability  
about an axis substantially orthogonal to the axis of rotation of said front wheel for translational  
movement of said vehicle.

5           18.    The vehicle of claim 15 further comprising a leaf spring suspension.

19.    The vehicle of claim 1 wherein said at least one tank comprises a main overhead tank and at least one auxiliary tank.

10           20.    The vehicle of claim 19 wherein said at least one auxiliary tank comprises at least one modular auxiliary tank, said at least one modular auxiliary tank comprising at least one removably attachable hinged connection to said vehicle.

15           21.    The vehicle of claim 19 further comprising at least one hingedly connected door for access to said main overhead tank.

22.    The vehicle of claim 19 wherein said main overhead tank comprises an approximately 2250 liter main overhead tank.

20           23.    The vehicle of claim 19 further comprising at least one guide rail on said main overhead tank and at least one guide channel within the vehicle, and wherein said main overhead tank slides into said at least one guide channel via said at least one guide rail on said tank.

24.    The vehicle of claim 19 further comprising an eductor for mixing material from at least one tank with another material.

25           25.    The vehicle of claim 1 further comprising left and right brakes wherein said brakes comprise separate controllability.

5            26.        An emergency response vehicle comprising:

          a body supportable on the ground by at least three wheels, said body comprising a rigid nose, said rigid nose comprising at least one shape selected from the group consisting of a wedge shape and a cone shape, and a compartment positioned aft of said nose for

10          mounting at least one tank for containing a material; and

          at least one delivery mechanism for delivering said material contained in said at least one tank to an area remote from the vehicle wherein said at least one delivery mechanism comprises at least one member selected from the group consisting of a mechanical pump and a

15          pressurized vessel.

**EMERGENCY RESPONSE VEHICLE**

**ABSTRACT OF THE DISCLOSURE**

A small emergency response vehicle having a wedge-shaped nose and triangular wheel base  
5 for improved accessibility to emergency sites previously inaccessible to conventional fire fighting  
vehicles. A main overhead tank and two modular auxiliary tanks provide 2400 liters of storage for  
water and/or surfactants. The front wheel provides a 360 degree turning radius. The vehicle can be  
air-lifted and air-dropped with a helicopter via attachment points on the heavy steel frame. An  
10 enclosed cab has a fire and impact resistant glass windshields and an air supply to the driver as well  
as to occupants in the tank compartment, when the tank is removed. A nozzle assembly is mounted  
on the nose of the vehicle to distribute the fire suppression materials.

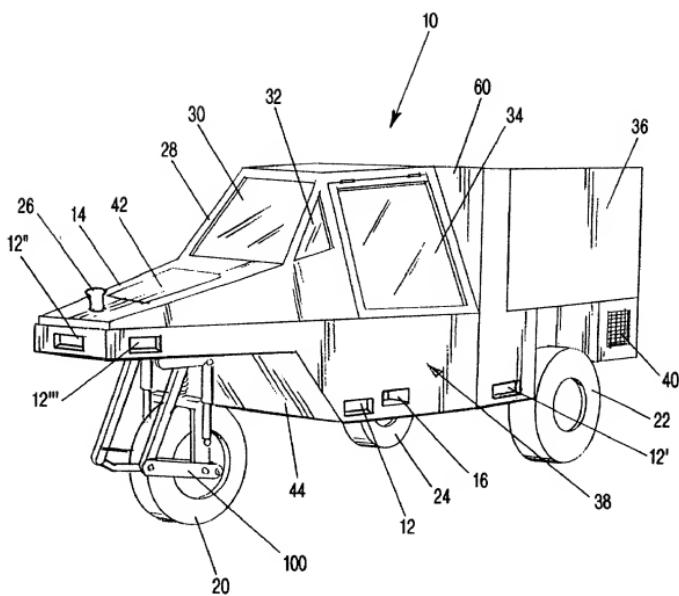


FIG-1a

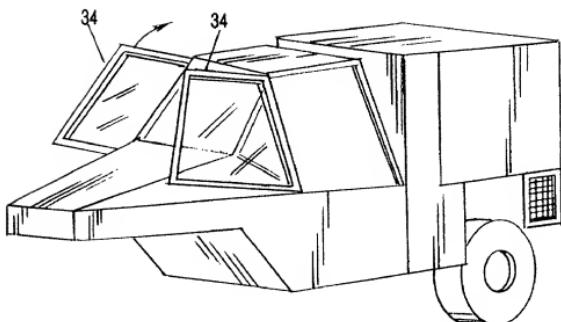


FIG-1b

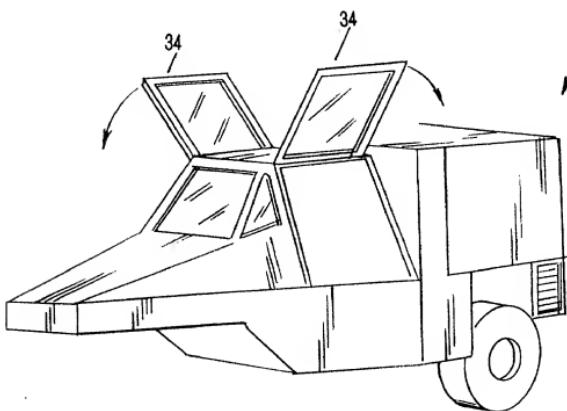


FIG-1c

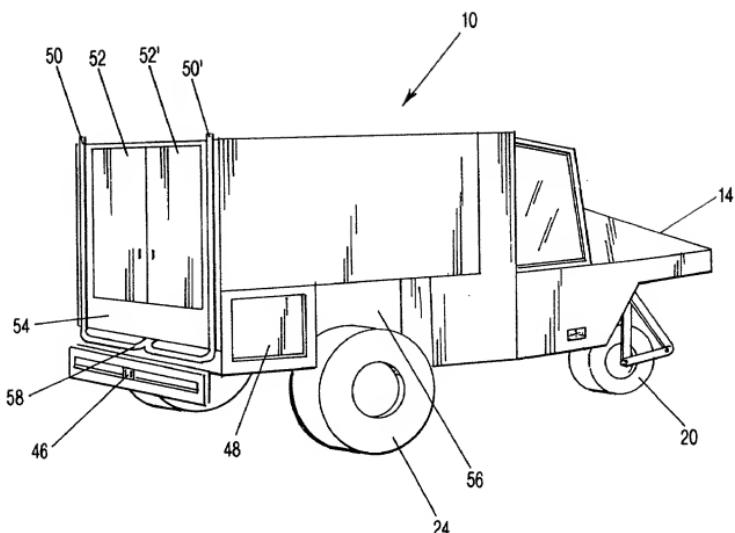


FIG-2

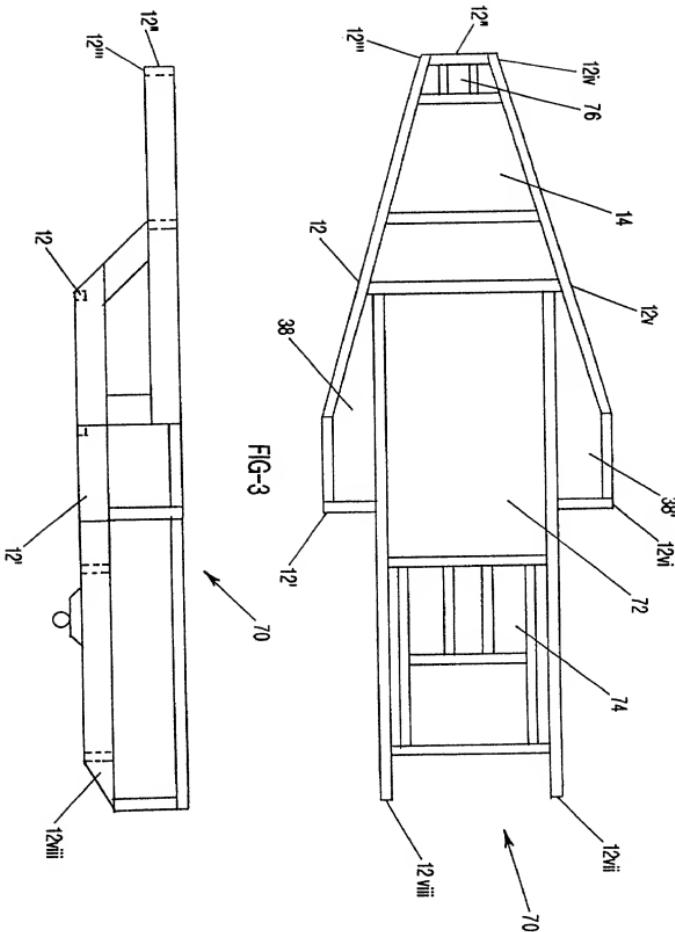


FIG-4

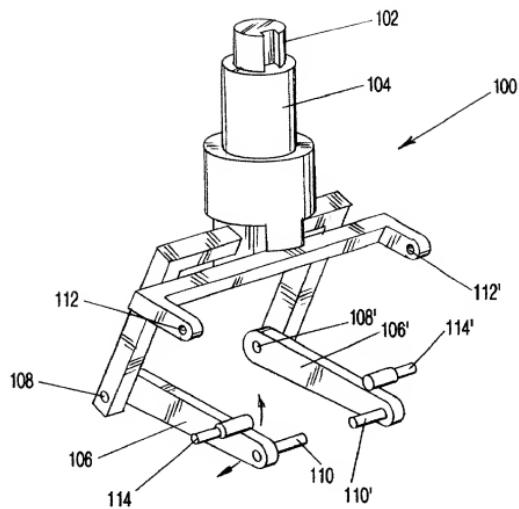


FIG-5

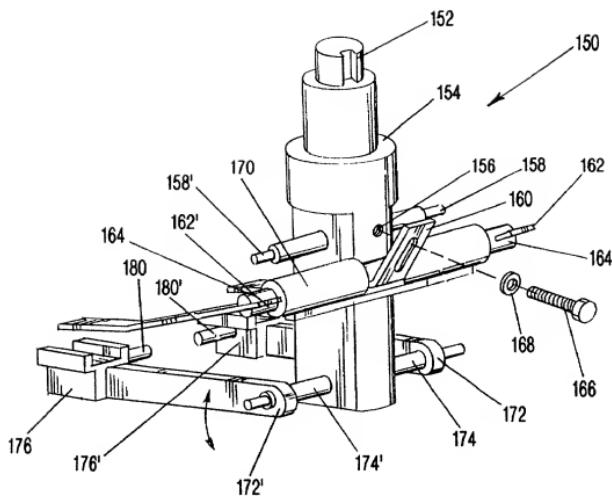


FIG-6

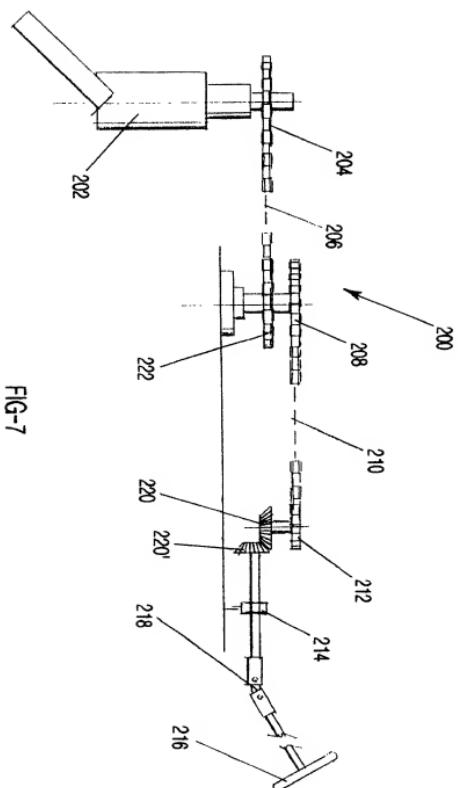
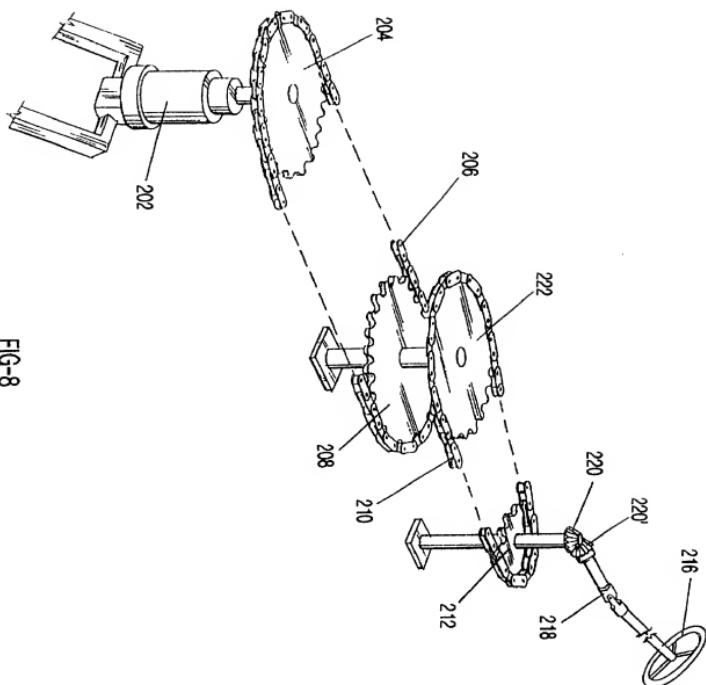


FIG-7



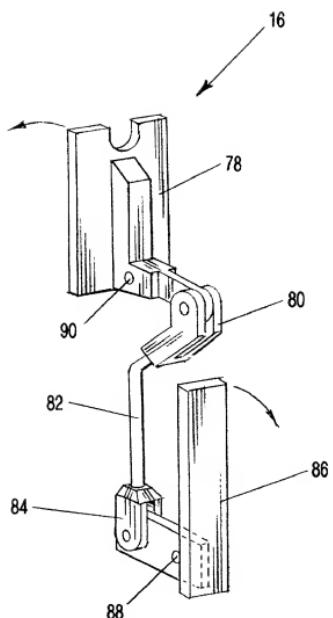


FIG-9

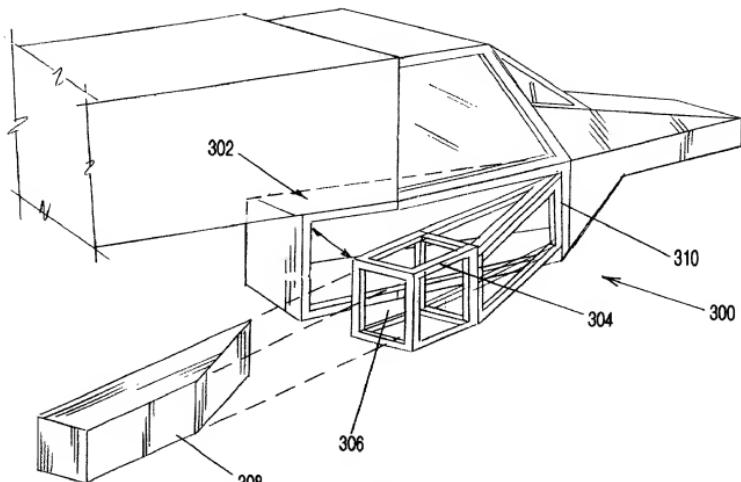


FIG-10

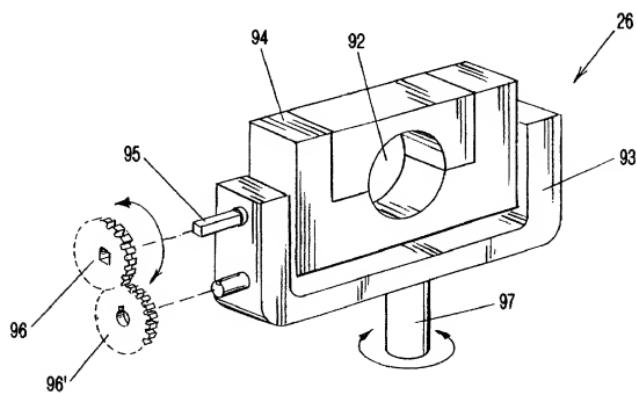


FIG-11

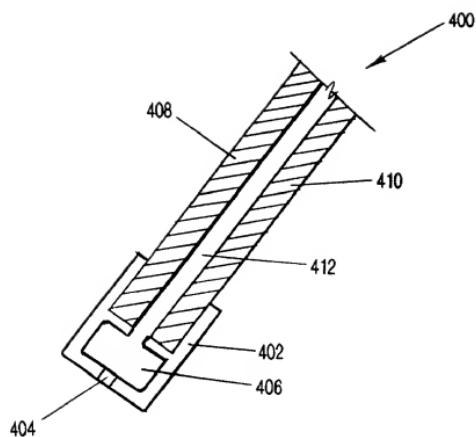


FIG-12

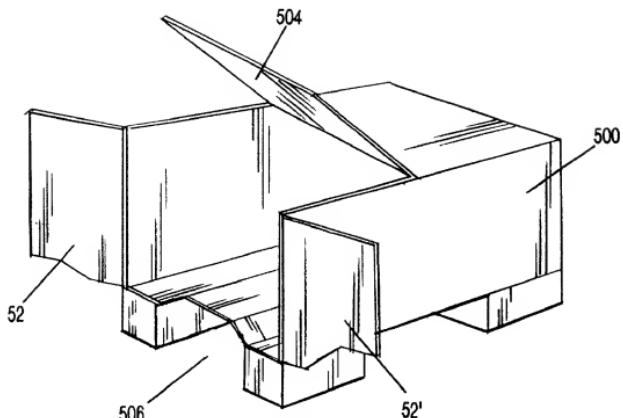


FIG-13a

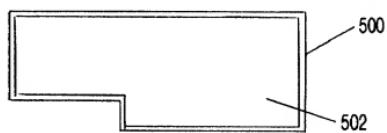


FIG-13b

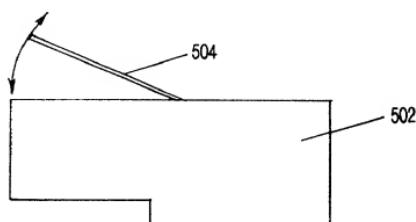


FIG-13c

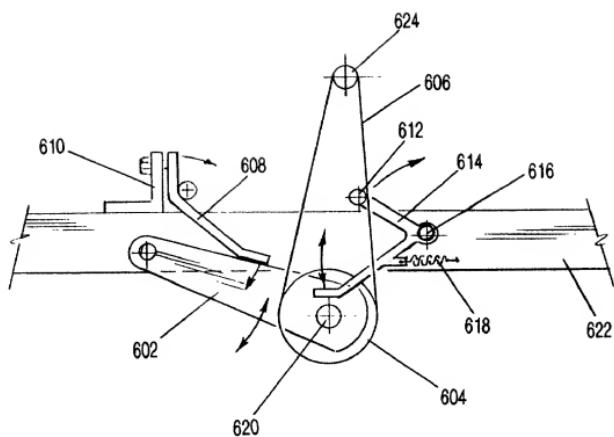


FIG-14

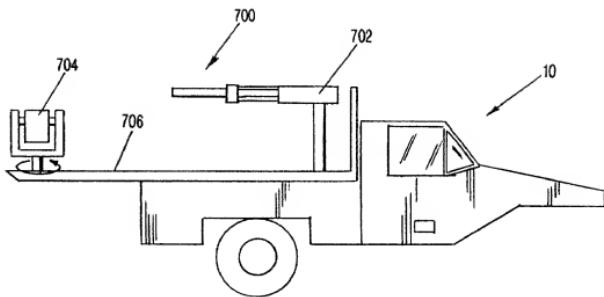


FIG-15a

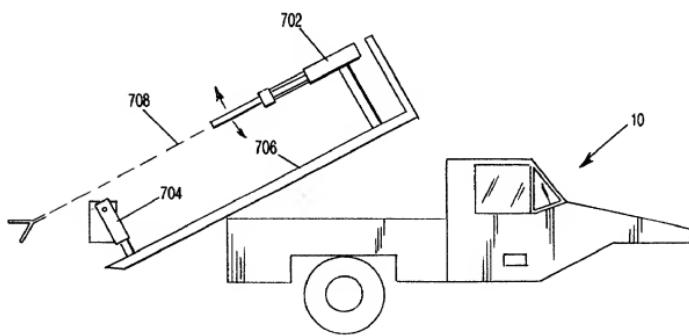


FIG-15b

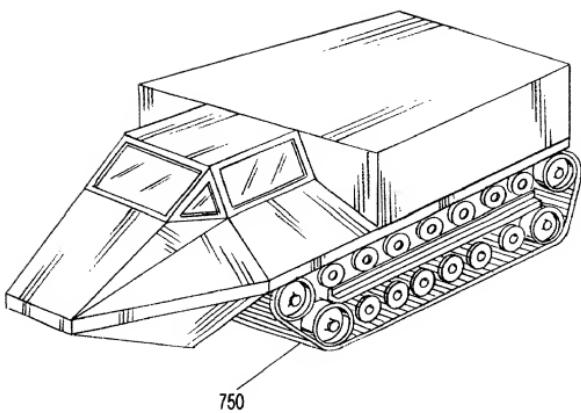


FIG-16

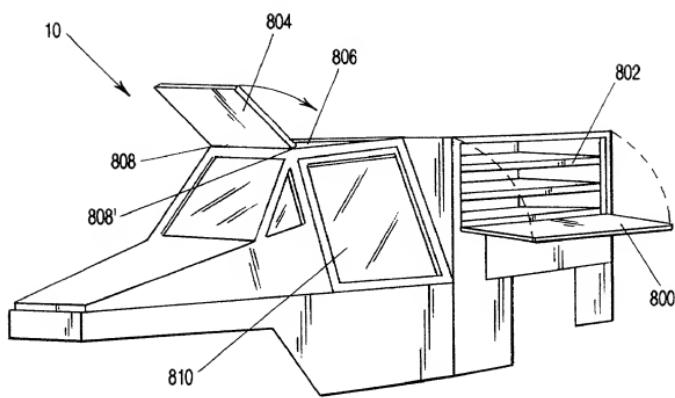
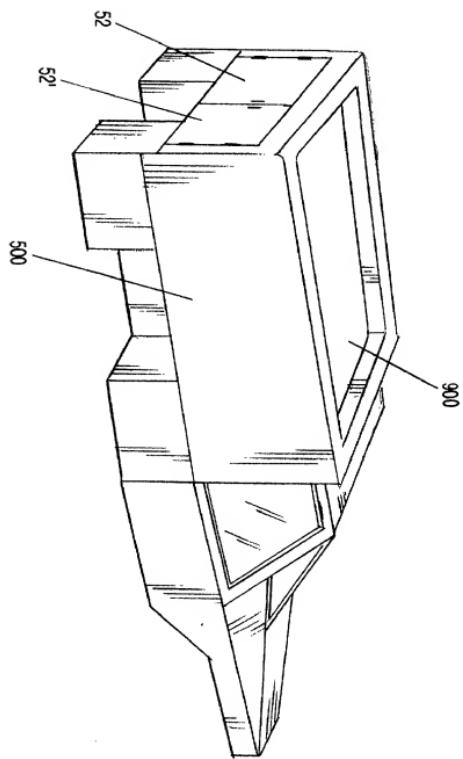


FIG-17

FIG-18



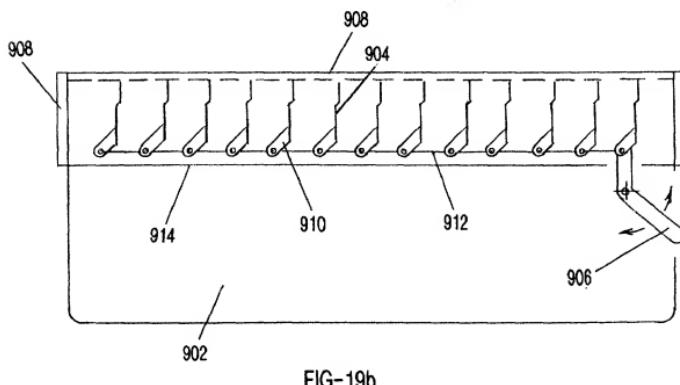
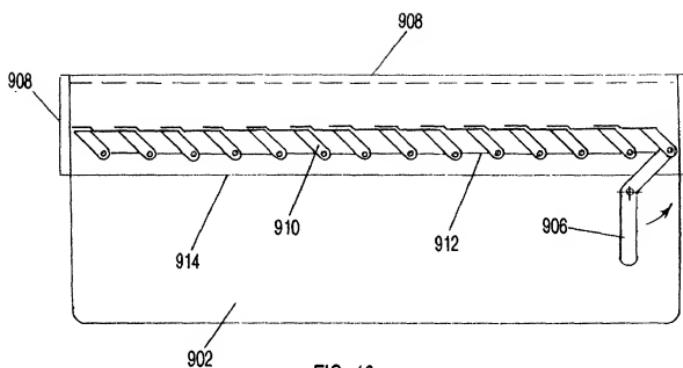
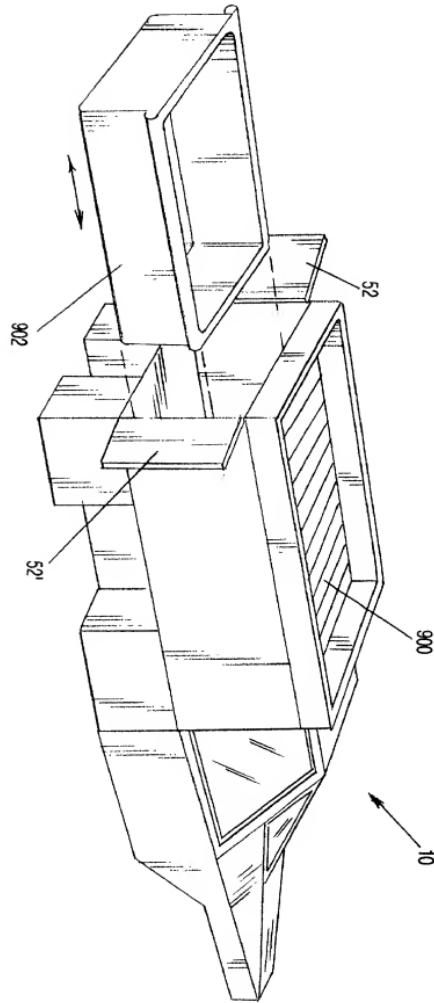


FIG-20



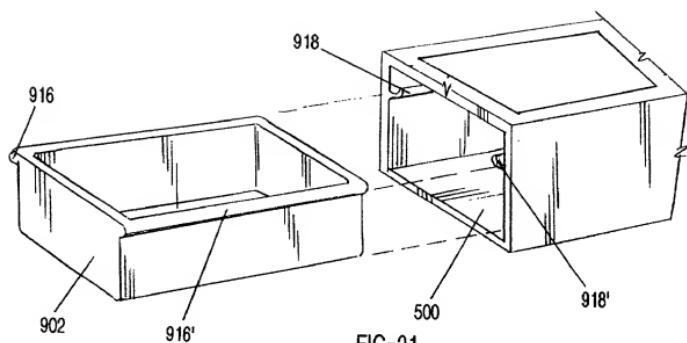


FIG-21

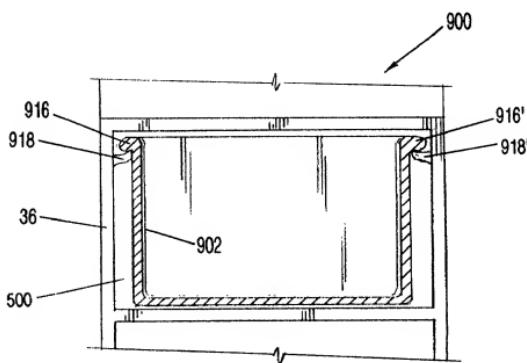


FIG-22

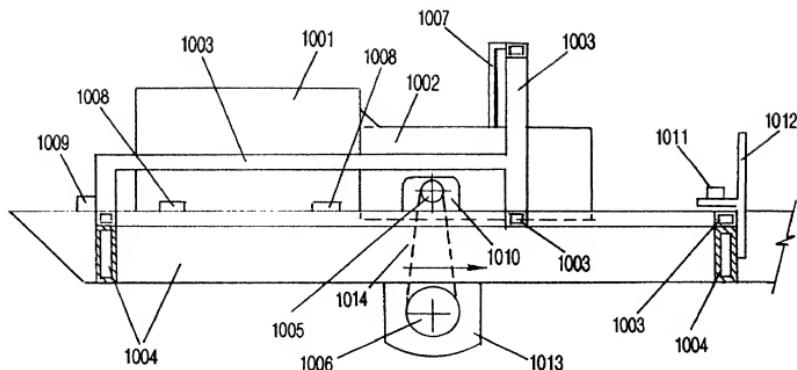


FIG-23a

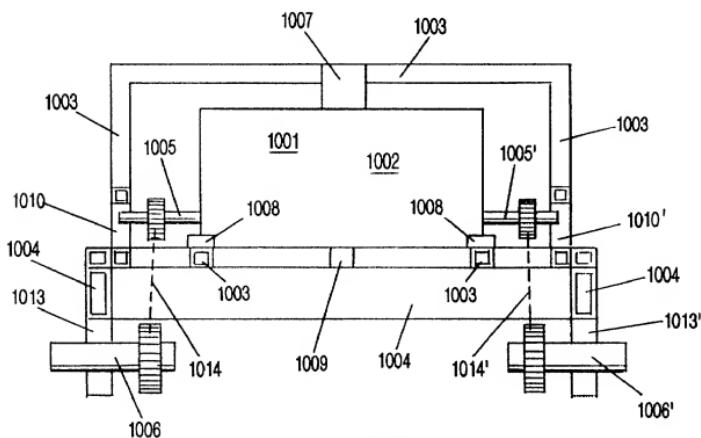


FIG-23b

U.S. Express Mail Label No. EL393280215US

Practitioner's Docket No. 30603UT1002

PATENT

**COMBINED DECLARATION AND POWER OF ATTORNEY**(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,  
CONTINUATION, OR C-I-P)

As a below named Inventor, I hereby declare that:

**TYPE OF DECLARATION**

This declaration is of the following type:

(check one applicable item below)

original.  
 design.

NOTE: With the exception of a supplemental oath or declaration submitted in a reissue, a supplemental oath or declaration is not treated as an amendment under 37 CFR 1.312 (Amendments after allowance). M.P.E.P. § 714.18, 7th Edition.

supplemental.

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. 5.1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

divisional.  
 continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(d) (application filing requirements — nonprovisional application).

continuation-in-part (C-I-P).

**INVENTORSHIP IDENTIFICATION**

**WARNING:** If the inventors are each not the inventor of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

**TITLE OF INVENTION**EMERGENCY RESPONSE VEHICLE

(Declaration and Power of Attorney (1-1)—page 1 of 7)

**SPECIFICATION IDENTIFICATION**

the specification of which:

(complete (a), (b), or (c))

(a)  is attached hereto.

NOTE: The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

(2) name of inventor(s), and attorney docket number which was on the specification as filed;  
or

(3) name of inventor(s), and title which was on the specification as filed.

Notice of July 13, 1995 (1177 O.G. 50).

(b)  was filed on \_\_\_\_\_, as  Serial No. 0 \_\_\_\_\_  
or  and was amended on \_\_\_\_\_ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 C.F.R. § 1.67.

NOTE: The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

(A) application number (consisting of the series code and the serial number, e.g., 08/123,456);

(B) serial number and filing date;

(C) attorney docket number which was on the specification as filed;

(D) title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

(E) title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number, e.g., 08/123,456), or serial number and filing date. Absent an statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) intended by signing the oath or declaration.

M.P.E.P. § 601.01(a), 7th Ed.

(c)  was described and claimed in PCT International Application No. \_\_\_\_\_ filed on \_\_\_\_\_ and as amended under PCT Article 19 on \_\_\_\_\_ (if any).

**SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))**

(complete the following where a supplemental declaration is being submitted)

I hereby declare that the subject matter of the  
 attached amendment  
 amendment filed on \_\_\_\_\_

was part of my/our invention and was invented before the filing date of the original application, above-identified, for such invention.

**ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56.

(also check the following items, if desired)

and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and  
 in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 C.F.R. § 1.98.

**PRIORITY CLAIM (35 U.S.C. §§ 119(a)-(d))**

NOTE: "The claim for priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(d) must be filed in the case of an interference (§ 1.53), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(f). If the certified copy is not in the English language, a translator need not be filed except in the case of interference, or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d)  no such applications have been filed.  
(e)  such applications have been filed as follows.

NOTE: Where item (e) is entered above and the International Application which designated the U.S. is self-claimed priority check item (e), enter the details below and make the priority claim.

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS  
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

---

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**NOTE:** If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

**POWER OF ATTORNEY**

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

BRIAN J. PANGRLE, Reg. No. 42,973

(check the following item, if applicable)

I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

**NOTE:** "Special care should be taken in continuation or divisional applications to ensure that any change of correspondence address in a prior application is reflected in the continuation or divisional application. For example, where a copy of the oath or declaration from the prior application is submitted for a continuation or divisional application filed under 37 CFR 1.53(b) and the copy of the oath or declaration from the prior application designates an old correspondence address, the Office may not recognize, in the continuation or divisional application, the change of correspondence address made during the prosecution of the prior application. Applicant is required to identify the change of correspondence address in the continuation or divisional application to ensure that communications from the Office are mailed to the current correspondence address. 37 CFR 1.63(d)(4). " § 601.03, M.P.E.P., 7th Edition.

**SEND CORRESPONDENCE TO**

Brian J. Pangrle

Address

**DIRECT TELEPHONE CALLS TO:**  
(Name and telephone number)

Brian J. Pangrle-(505) 998-1505-direct  
Andrea L. Mays - (505) 998-6132-direct  
Main Switchboard - (505) 998-1500



**005179**

PATENT TRADEMARK OFFICE

Customer Number

(complete the following if applicable)

Since this filing is a  continuation  divisional there is attached hereto a Change of Correspondence Address so that there will be no question as to where the PTO should direct all correspondence.

(Declaration and Power of Attorney [1-1]—page 5 of 7)

**DECLARATION**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**SIGNATURE(S)**

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 CFR § 1.53(a)(3).

NOTE: Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.53(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 82 Fed. Reg. 53,131, 53,142, October 10, 1987.

Full name of sole or first inventor

JOHN *John Johnson* JOHNSON, IV  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
Inventor's signature *John Johnson*  
Date May 17, 2000 County of Citizenship US  
Residence Edgewood, New Mexico  
Post Office Address Post Office Box 1322  
Edgewood, New Mexico 87015

Full name of second joint inventor, if any

JOHN *John Johnson* JOHNSON, IV  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
Inventor's signature *John Johnson*  
Date May 17, 2000 Country of Citizenship US  
Residence Edgewood, New Mexico  
Post Office Address Post Office Box 1322  
Edgewood, New Mexico 87015

Full name of third joint inventor, if any

JOHN *John Johnson* JOHNSON, IV  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
Inventor's signature *John Johnson*  
Date May 17, 2000 Country of Citizenship US  
Residence Edgewood, New Mexico  
Post Office Address Post Office Box 1322  
Edgewood, New Mexico 87015

(check proper box(es) for any of the following added page(s) that form a part of this declaration)

Signature for fourth and subsequent joint inventors. Number of pages added \_\_\_\_\_

• • •

Signature by administrator(s), executor(s) or legal representative for deceased or incapacitated inventor. Number of pages added \_\_\_\_\_

• • •

Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. Number of pages added \_\_\_\_\_

• • •

Added page for signature by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47)

• • •

Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

Number of pages added \_\_\_\_\_

• • •

Authorization of practitioner(s) to accept and follow instructions from representative.

• • •

(If no further pages form a part of this Declaration, then end this Declaration with this page and check the following item)

This declaration ends with this page.

PATENT APPLICATION

I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 via Label No. EL393280215US on May 18, 2000, addressed to Box: Patent Application, Commissioner for Patents, Washington, D.C. 20231.

*Diane S. Nelson* May 18, 2000  
Diane S. Nelson, Paralegal Date Signed

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	John J. Johnson, IV	:	
Serial No.:	UNKNOWN	:	Attorney Docket No.: 30603UT1002
Filed:	May 18, 2000	:	Anticipated Group Art Unit: UNKNOWN
For:	EMERGENCY RESPONSE VEHICLE	:	

ASSOCIATE POWER OF ATTORNEY

**Box: Patent Application**  
Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Brian J. Pangrle, a principal attorney in the above-identified application for Letters Patent, hereby appoints:

Deborah A. Peacock, Reg. No. 31,649  
Jeffrey D. Myers, Reg. No. 35,964  
Paul Adams, Reg. No. 21,096  
Rod D. Baker, Reg. No. 35,434  
Andrea L. Mays, Reg. No. 43,721; and  
Stephen A. Slusher, Reg. No. 43,924

as associate attorneys with full power.

Respectfully submitted,



Brian J. Pangrle Reg. No. 42,973  
Direct line: (505) 998-1505

Attorney for Applicant(s)  
PEACOCK, MYERS & ADAMS, P.C.  
P.O. Box 26927  
Albuquerque, New Mexico 87125-6927  
Telephone: (505) 998-1500  
Facsimile No. (505) 243-2542  
Customer No. 005179